

FEBRUARY 16, 1959

# PURCHASING

The Methods and News Magazine for Industrial Buyers

## Materials Management

The Theory and  
The Practice

Start on page 69



Lease or Buy Equipment? ..... page 18

Small-Plant Materials Management ..... page 72

The P.A. as Materials Manager ..... page 74

When to Break Buying Rules ..... page 77

Table of Contents page 5

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## Ever see a water magnet?

Our enjoyment of candy and tobacco would soon disappear if it were not for the invisible magnet that holds their moisture—glycerine.

Maintaining moisture balance in candy and tobacco is only one of an amazing number of tasks glycerine performs. It makes cellophane pliable and tooth paste smooth-flowing. It goes into explosives, paint, glue, and ink. Glycerine promises to play a vital role in the newly developed technique for preserving "eye-bank" corneal tissues at freezing temperatures.

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Answering a wide range of needs by producing high purity glycerine is one more way Shell Chemical serves industry.



**Shell Chemical Corporation**

*Chemical Partner of Industry and Agriculture*

NEW YORK



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**Don't buy just the tool,  
buy the JOB it'll do!**

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Let V-R carbides help increase production and reduce costs in your plant. Contact your local V-R representative or distributor.



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**Vascoloy-Ramet corporation**

PRIME MANUFACTURERS OF REFRACtORY METALS ENGINEERED FOR THE JOB

840 Market Street • Waukegan, Illinois

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**B.F.Goodrich**

# SUCCESS STORIES

**B.F.Goodrich distributors helped these customers cut costs. Can they help you?**

### *Magnetic Attraction*

At the steel plant in the picture, wire from big coils goes into a machine that forms it into nails and spits them out against a rubber belt with magnets behind it. Up the nails go and into a cart to be wheeled away. But when ordinary belting was used, the nails used to slip and slide; the belts were short-lived.

Then a B.F. Goodrich distributor sold the company B.F.Goodrich oil-resisting Gritrite belts. Parallel ribs of flexible rubber, spaced four to the inch, give this belt good gripping action.

Now the nails stick to the belts much better. Each Gritrite belt lasts about a year—four or five times as long as former belts lasted.

### *Shakedown treatment*

An Alabama coal mine uses big metal tables to separate the rock that gets mined with coal. Coal and water are dumped on these tables, which jiggle constantly, literally shaking the rock out of the coal. But the sharp rock and coal wore out every material used to cover the tables. Some covers lasted only two months.

When a B.F. Goodrich distributor heard about this, he told the coal company about B.F.Goodrich "Armorite", a rubber so tough it often outlasts the hardest steel 10 to 1. One of the coal-shaking tables was covered with this

rubber. It lasted 10 years, handled 1,841,190 tons. Because of the big savings in repairs and replacements, the company has had all their coal-separating tables covered with Armorite.

### *Duct soup*

A manufacturer of photographic equipment in New York state bought a test section of fume duct 6 feet by 6 feet by 4 feet, made of B.F.Goodrich rigid Koroseal material. Koroseal, often made in flexible forms, can be made rigid, resists most acids and chemicals. The distributor has now received approval of the test and authority to proceed with a system which will cost about \$7,000.

### *Good riddance*

A steel company used to have trouble piping huge quantities of fly ash to a disposal pit. The mixture of acid water, gritty fly ash and metal slivers was wearing holes through metal pipe in only six months. Each pipe replacement cost \$700 plus about 100 hours of workers' time.

Company engineers, working with a B.F.Goodrich distributor, decided to replace the pipe with a B.F.Goodrich hose designed to handle rough materials. After 8 years' service, the B.F.Goodrich hose, called "Convertapipe", shows no sign of wear, looks good for years more use. Plant engineers figure the change from pipe to rubber hose has already saved \$6,400 in

replacement costs and \$4,800 in maintenance costs.

### *Hot foot*

A manufacturer of house-trailer steps in Arizona had trouble with ordinary rubber stair treads in the hot Arizona climate. Aluminum sheets on the vertical panels of steps reflected and concentrated the sun's rays on the horizontal rubber parts, making the temperature 140 to 170 degrees.

Then Koroseal runner matting was recommended by a B.F.Goodrich distributor. Customer finds it stands the sun better, has long life, is oil-resisting, easy to clean, does not creep.

### *Chain reaction*

A B.F. Goodrich distributor in Massachusetts sold large-size V belts to a food processor by redesigning a high-cost chain-type conveyor carrying trays. The rubber belts work better than the chain, save money for the customer.

### *New product*

**Industrial fire hose.** B.F.Goodrich "Imperial" hose, made with an all-Dacron jacket, is recommended for heavy-duty service in oil refineries, chemical plants, construction jobs, mining, and in general industrial service. Hose is lighter, more flexible, stronger, longer-lasting than conventional industrial fire hose; has exceptional resistance to abrasion, is impervious to mildew, oil, acids, alcohols, hydrocarbons and detergents. Sizes: 1", 1½", 2", 2½".

### *New catalog*

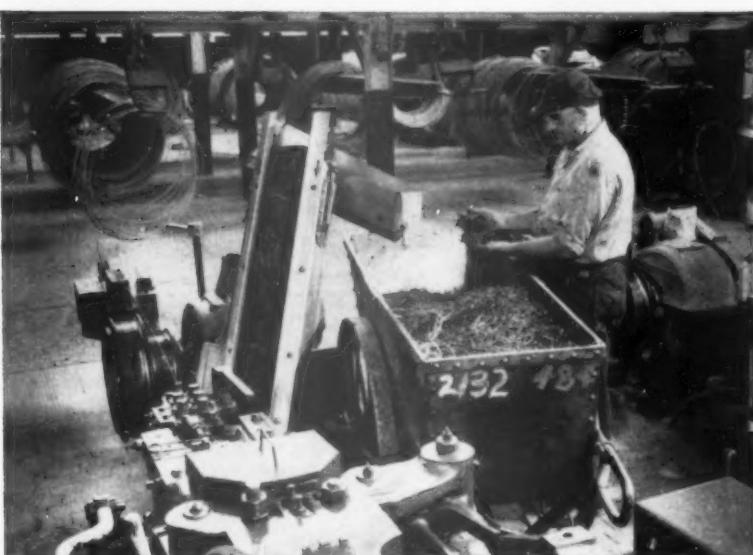
**Oil-resisting conveyor belts.** Catalog No. 2460 tells how to select B.F. Goodrich oil-resisting conveyor belts. Performance of three types of belting—oil-resisting, oilproof and superoilproof—is compared in services where belts are subjected to petroleum oils, cutting oils, organic solvents, cleaners, lacquer solvents and fatty oils.

### **For more information**

For full information about any product described on this page, see your B.F. Goodrich distributor or write *B.F. Goodrich Industrial Products Co., Dept. M-516, Akron 18, Ohio.*

Koroseal—T. M. Reg. U. S. Pat. Off.

**B.F.Goodrich**  
*industrial*  
**rubber products**



*Nails fall up, costs go down—see "Magnetic attraction"*

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# STRONG

more absorbent...

good-will builder in the washroom



"Little things affect people's attitude toward you"

© Fort Howard Paper Company



## Fort Howard Paper Company

Green Bay, Wisconsin

America's most complete line of paper towels, tissues and napkins



# PURCHASING

The Methods and News Magazine For Industrial Buyers

FEBRUARY 16, 1959

VOLUME 46, No. 4

B. P. MAST  
*Chairman of the Board*

B. P. MAST, JR.  
*President*

RAY RICHARDS  
*Publisher*

## Purchasing Previews

Straws in the Trade Winds . . . . .	7
Special Industry Report: Steel . . . . .	11
Purchasing Opinion Poll: Are P.A.'s Leasing More Equipment? . . . . .	15
The Straight Facts on Industrial Equipment Leasing . . . . .	Leonard Sloane 18
Washington Report . . . . .	23
Purchasing and Our Security . . . . .	67
There Are No "Right Answers" in Materials Management . . . . .	Dean Ammer 69
Materials Management in the Small Plant . . . . .	72
What Happens When a P.A. Becomes Materials Manager? . . . . .	John Van Deventer 74
Don't Be Afraid to Break the Rules . . . . .	Stuart F. Heinritz 77
Selecting and Evaluating Vendors . . . . .	Ned Kellogg 80
Are You "Stealing" Your Suppliers' Ideas? . . . . .	Ray Marien 82
High Pressure Purchasing in a Three-Man Department . . . . .	84
Purchasing Meets Challenge of Small Company Growth . . . . .	86
A Sure Way to Gain Management Recognition . . . . .	C. D. Francisco 88
Big Savings in Small Packages . . . . .	W. F. Martin and E. B. Silveira 90
Legal Aspects of Patent Licenses . . . . .	A. W. Gray 93
Can You Use Ultrasonic Cleaning? . . . . .	96
Selecting a Time Clock . . . . .	144

## MONTHLY FEATURES

Highlights of This Issue . . . . .	65
Information for Your Catalog Files . . . . .	48
Letters to the Editor . . . . .	52
Purchasing People . . . . .	58
F.O.B. . . . .	60
Products and Ideas . . . . .	96
Office Equipment and Supplies . . . . .	144
Association News . . . . .	158
Employment Service . . . . .	220
Index to Advertisers . . . . .	222

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ditional mailing offices.

# Held down "impossible" job for months vs. days

They were asking the "impossible" at this big West Coast mine. The hose used in their big beneficiation plant must be tough enough to handle the flow of murderously abrasive iron-ore slurry. Yet it still must be flexible enough to follow a twisting, bending course down from the top of the seven-story structure.

So it's little wonder their first hose sprang numerous leaks almost immediately — was finished completely in about 45 days. It wasn't until the G.T.M. — Goodyear Technical Man — recommended his special ore-carrying hose that they got satisfactory service.

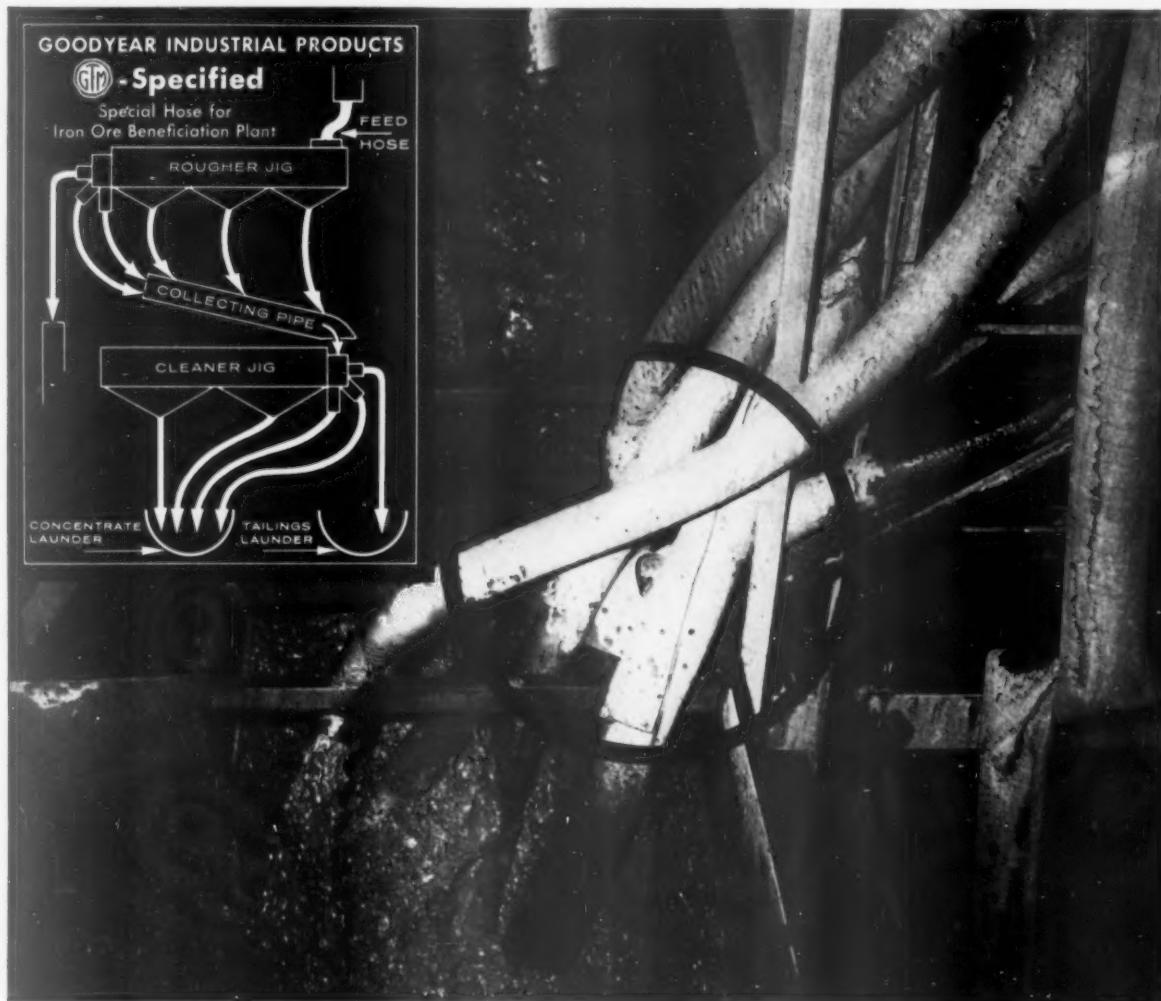
In fact, the G.T.M.'s hose has been so successful that the company's purchased over 4,000 feet of it to date.

It's been on the job over 12 months now — completely mastering this extra-tough job.

So once again, the G.T.M. has proved that the "impossible" often boils down to right hose — and the right recommendation. Make sure you get both — by contacting your Goodyear Distributor — or writing Goodyear, Industrial Products Division, Akron 16, Ohio.

• • •

**IT'S SMART TO DO BUSINESS with your Goodyear Distributor. He can give you fast, dependable service on V-Belts, Hose, Flat Belts and many other industrial rubber and non-rubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."**



HOSE FOR ALL INDUSTRY BY

# GOOD YEAR

THE GREATEST NAME IN RUBBER

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## Purchasing Previews

### Straws in the Trade Wind

► **CONTROLS FOR PURCHASING**—One of the hottest current topics in purchasing circles: the application of management controls. McKinsey & Company, management consultants, have devised ways to measure the tangible aspects of a "good buy" and report the results to management. These elements include price, quality, delivery performance, and special vendor services. Other areas where purchasing controls can be set up—materials specifications, basic sourcing decisions, and materials management.

► **LEAD FOR SOLDERING**—Lead base solders are being used as an inexpensive and efficient method of joining metal parts. A high lead braze has been developed for low cost production of ceramic-metal seals—useful up to working temperatures of about 300 degrees C. It has been extensively applied in the electronic and metalworking industries.

► **GNP RISE AT 3%**—For the future—Gross National Product will rise at the rate of at least 3% a year, based on 1954 constant dollars, says the National Industrial Conference Board. To back up the prediction, it cites estimates from a number of organizations—including the Joint Committee on the Economic Report, the Depart-

#### For the P.A.'s Hot File . . .

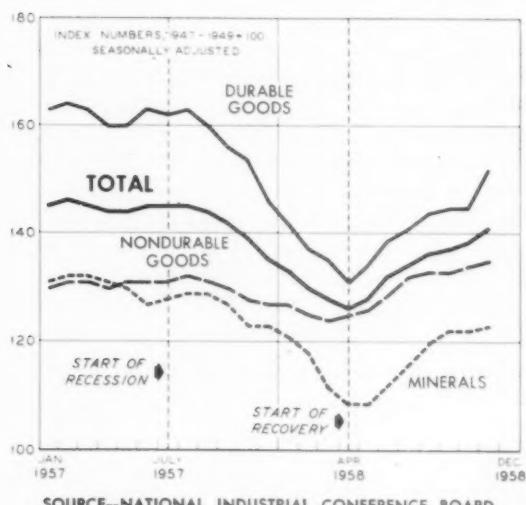
Industrial diamonds are expected to gain wider usage. The direct application of diamonds to metal finishing operations offers new possibilities. This comes on top of increased use of diamond wheels and tools for sharpening and shaping tools and wheels of other hard metals. Many purchasing agents are ordering industrial diamonds for production jobs for greater efficiency and more economical grinding and cutting.

ment of Agriculture, and the Bureau of Labor Statistics—which predict a rate of growth even higher than 3%. Says the NICB: "the historic 3% a year rate of growth is on the conservative side.

► **DOWN TO THE WIRE**—A little over one-third of the \$148 million that Western Union derives from telegraphic use in industry stems from purchasing departments. The total amount is more than \$50 million yearly. Only areas that exceed purchasing in use of wires are sales, marketing, and advertising.

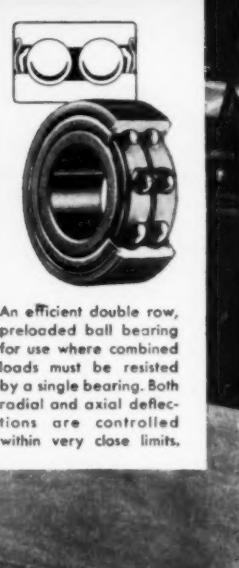
► **WAREHOUSE SHIPMENTS UP**—First quarter sales of steel service centers are expected to be 10% higher than the last three months of 1958. So says the American Steel Warehouse Association. The association says P.A.'s "are gradually increasing their steel inventories," but they term the increase "moderate . . . to support existing business."

► **REPORT ON NONFERROUS**—Here's a thumbnail report on the '59 outlook for six non-ferrous metals from I. W. Wilson, chairman of the board of Alcoa. Aluminum—A consumption gain of at least 10%, prices to remain relatively stable until mid-year. Copper—Shipments up 10% to 15% over 1958; prices stable unless labor difficulties develop. Lead—A rise of 5% to 10% in shipments, with somewhat greater price stability. Zinc—Strengthened prices, and shipments up more than 10%. Magnesium—De-



The production indices have regained a good part of the loss that took place when the 1957-58 recession was in full force.

# CASE HISTORIES



An efficient double row, preloaded ball bearing for use where combined loads must be resisted by a single bearing. Both radial and axial deflections are controlled within very close limits.

Photo: Courtesy Jacobsen Mfg. Co., Racine, Wisconsin

## **Ball Bearing Design Helps Cut Power Mower Costs \$4.29 Per Unit!**

### **CUSTOMER PROBLEM:**

Require bearing design that will help reduce production costs of power mower without affecting mower's high quality and performance.

### **SOLUTION:**

N/D Sales Engineer, working with company engineers, recommended a new, more efficient cutter housing design utilizing three precision New Departure production double row ball bearings. These high capacity dual purpose

bearings resist heavy radial and thrust loads in any combination. The conversion accounted for a parts and assembly-time cost savings of \$4.29 per mower. In addition, the manufacturer is able to promise mower users years of trouble-free performance, while pricing more competitively at retail!

Perhaps there's a New Departure production ball bearing that will help lower costs and add new sales appeal to your product! Why not call on New Departure today? For more information write Department V-2.

*Replacement ball bearings available through United Motors System and its Independent Bearing Distributors*

**NEW DEPARTURE**  
DIVISION OF GENERAL MOTORS, BRISTOL, CONN.  
NOTHING ROLLS LIKE A BALL

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### Straws in the Trade Wind

mand to increase as much as 20%. Titanium—Its usefulness in missiles and other space age innovations should increase its prospects.

► **TIRE PRICES RAISED**—Prices of original equipment tires were raised between 1% and 2½% at the turn of the year. This could be the forerunner of wholesale and retail tire price hikes soon. Retail tire prices have risen nearly 20% in the past five or six years.

► **WHAT'S IN A NAME**—Ever wonder why some products are designated by numerals instead of names? There are many reasons, of course, but here's an important one, according to the Parker Pen Company: It calls its pens "21", "41", "51", and "61" for one main reason—the terms can be translated easily into any language, a vital factor in foreign sales.

► **COAL PIPELINE SUCCESSFUL**—The pilot pipeline for coal in eastern Ohio has proved successful, says the American Iron and Steel Institute. The 108-mile pipeline moves coal that has been crushed and mixed with water at the same speed that oil moves through—approximately three miles an hour. The slurry is pro-

pelled by three pumps, and the coal particles (all smaller than  $\frac{1}{8}$  inch) are dewatered and dried at their destination. The pipeline is expected to transport over 1,350,000 tons of coal a year between Belmont County and Eastlake.

► **RECENT PRICE CUTS**—Here's some price cuts that have been announced by vendors: Raytheon Manufacturing Company reduced prices on six types of transistors by an average of 12%; Rotary Lift Company cut its frame pick-up lift by 10%; and Hercules Powder Company trimmed its Pro-fax polypropylene price by seven cents a pound.

► **ALUMINUM FOR SMALL BUSINESS**—A sizeable long-term supply of aluminum pig, ingot, and billet has been assured to purchasing agents for small business. This comes as a result of an agreement between the General Services Administration and Aluminum Company of America. 6000 tons quarterly will be made available specifically to non-integrated users who qualify as small business concerns. The agreement carries out some of the recommendations made by a subcommittee of the House Small Business committee last year.

### QUOTE! .....



Robert B. King

"Management should stop leaning on the 'expert' and start making more of its own decisions," says Robert B. King, president of Profit Counselors, Inc., management consultants. Mr. King feels that "a manager who looks to new developments in management consulting . . . as the answer to his decision-making responsibilities is deluding himself and quite possibly diluting the assets of his company at the same time." He gives this warning to industrial purchasing executives: " 'Think' like the sign in your office says. But don't ever stop there. Act on your thinking and do it much more often."



Riegel hot mill glove in use in Kaiser Aluminum Plant

## SAFETY-CONSCIOUS KAISER ALUMINUM & CHEMICAL USES

# Riegel

## Hot Mill Gloves

In well managed companies like Kaiser Aluminum & Chemical Corp., hand safety rates high in attention. And where safety counts, you'll find Riegel work gloves.

Quality is part of safety. Full protection longer... less danger of burns through thin spots, or snagging on worn holes. (And of course less time wasted replacing worn gloves.)

Here are savings made possible because Riegel experts fit the *right* glove to the job. More than 400 styles and materials... 8 warehouses to speed deliveries. For help in improving safety and reducing costs in your plant, call or write Riegel.

**RIEGEL TEXTILE CORPORATION • Conover, N.C.**

30-oz., 3-ply Hot Mill

ASK FOR FREE CATALOG

Green Giant extra heavy  
double quilted palm



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## HOW FOUNDRY SAVES \$90 PER MAN WITH Riegel Special-Purpose Gloves

Here's on-the-job proof! No matter how special your needs are, Riegel has the *right* glove. This large midwest foundry switched from leather-palm gloves to Riegel's specialized Hot Press gloves for handling hot castings. They paid 15% more per pair, but got 87% more wear! \$90 saved every year for every man!

The men prefer Riegel's added roominess and the thick, wool-content lining that gives better heat protection and longer wear. Riegel's wing thumb adds flexibility.

Riegel offers you over 400 different styles and materials... expert advice by industrial specialists... 8 warehouses to speed deliveries. Write today.

**RIEGEL TEXTILE CORPORATION • Conover, N.C.**

Hot Press Gantlet: leather  
index finger, tips and strap.

ASK FOR FREE CATALOG

Special-purpose all-leather  
gantlet; full hand protection.





**I**F YOU HAVEN'T ALREADY done something about rebuilding your steel inventories, now's the time to start.

If you don't, you may find yourself at the tail end of the chow line, with no guarantee there will be anything in the pot when you reach the serving table. The steel market is that tight. And it's getting tighter.

The reason: A possible steel strike at mid-year.

You may think it's a bit too early to worry about a strike, but if you do you're in the minority.

The rush to rebuild inventories before July 1, when existing steel labor contracts are scheduled to expire, is rapidly turning into a stampede. This may be a sad commentary on the state of labor relations in the steel industry, but it's

a fact that must be reckoned with.

Steel labor will be out for "more of everything" again this year. That's no secret. Neither is it a secret that the steel mills will put up a stiff fight to hold the line against excessive demands.

That's why the odds favor a strike that could go on for as much as six weeks—and possibly longer.

You may have heard some rumors that steel labor may continue to work after its contracts have expired even though a new agreement has not been reached. That's always a possibility. But you can't afford to bank on it. The United Steelworkers' policy of "no contract—no work" is a firm one.

The steel market began to tighten up in January. Market

strength showed itself first in the Chicago area. By mid-month, cold-rolled sheets and wide plate were being doled out to customers on an allocation basis.

Mills in Pittsburgh and the East did not begin to feel the effect of the big push until late in January. Then the roof caved in. Pittsburgh mills were swamped with orders. The influx was so heavy that, in certain cases, new business exceeded the mills' capacity to produce.

What happened? The big steel users, notably automotive companies, suddenly became alarmed. They not only pushed through heavy orders for their own use, but they also told their vendors to lay in enough steel for parts and components for the balance of the 1959 model year. In some cases, the auto companies guaranteed their suppliers that they would not be stuck with heavy inventories of steel should a new steel contract be negotiated without a strike. Other industries—farm equipment, appliances, trucks, machinery, oil and gas and even the railroads—hopped on the band wagon.

So you can look for a very tight



## *Industry* NEEDS DEPENDABLE NOURISHMENT *too!*

Take a tip from your family's dependence on "nature's most nearly perfect food". Coal is nature's most nearly perfect fuel. It's here in abundance for ages to come, a dependably low-cost and most efficient source of "go power"! It's convenient too—right on *Industry's* doorstep.



BITUMINOUS COALS FOR EVERY PURPOSE

Ask our man! BALTIMORE & OHIO RAILROAD, BALTIMORE 1, MD. Phone: LExington 9-0400

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### Special Industry Report:

#### Steel Capacity Is Ample . . . But Labor Could Upset the Applecart



Steel Capacity  
(Millions of  
Ingot Tons)

1959	147.6
1958	140.7
1957	133.5
1956	128.4
1955	125.8
1954	124.3
1953	117.5
1952	108.6
1951	104.2
1950	99.9



steel market situation between now and June 30. And if there's a long strike the market will be tight for the rest of the year.

#### The Detailed Picture

That's the market story in brief. In detail, this is what has been going on:

Steel order books have been building up in two directions. Many steel users have been placing orders for late second quarter delivery and at the same time ordering normal—or above normal—tonnages for first quarter intake. This makes it tough for those steel users who figured to come into the market at the last minute. In many cases, it may already be too late for that.

**The products hardest to get will be in the flat-rolled category: Cold-rolled sheets and strip, galvanized sheets, terne plate (used to make auto gas tanks), and plate. Not so tight—but still tough—will be hot- and cold-rolled bars, oil well tubing and casing, linepipe, and structurals.**

One thing you must keep in mind: in a short-term market pinch of this sort, the great strength of one product tends to weaken the availability of another product. This is because the stronger product naturally takes a bigger share of the available

ingots, the starting point of finished steel output. That leaves less raw steel for production of other products.

Is there much chance that steel labor and steel management will negotiate a new contract without a strike? At the moment, it would not seem so. Both sides have mounted high-powered advertising programs aimed at winning over the public to their points of view. The pre-negotiation atmosphere is not too encouraging.

Still, there's always the chance—however slim—that "outside" pressures might be brought to bear to avoid a blowup.

President Eisenhower and government officials on both sides of the political fence have been concerned about labor settlements that must be offset by higher prices. They are particularly worried about steel.

Under these circumstances, you can bet that both sides will be hearing from the government, whether or not a steel strike should threaten.

#### Steel Price Hike

Even if there isn't a strike, steel prices are almost certain to go up again this year. The steel workers will get enough of a wage boost to warrant a general increase in steel prices. How much

the increase will be depends on the cost of the settlement.

Last year, when labor costs rose more than 22 cents an hour—exclusive of the impact on Social Security and Unemployment Compensation taxes, etc.—the steel companies raised prices an average of \$4.50 per ton. At that time, though, the mills were under pressure to hold the increase to a minimum. Business was slow and the market was very competitive. How much the hike will be this year depends on so many variables that it's just about impossible to come up with a figure that would mean anything.

#### To sum up:

(1) **It would be wise to stock up on enough steel to carry your production some weeks beyond the steel contract expiration date of 12:01 a.m., July 1.**

(2) **The steel market is already tight and getting tighter. Even at this early date, you may find it difficult to get space at the mill you would like to do business with.**

(3) **The odds favor a steel strike. But there's an outside chance that public opinion and government pressure will force both sides to reach a reasonable settlement.**

(4) **A steel price rise is almost a certainty.**

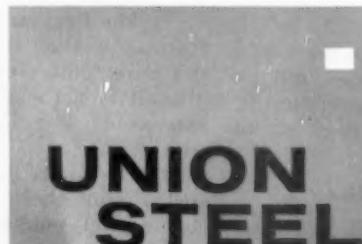


## **"HEARD ABOUT THE HUGE ANNEALING FUR- NACE IN UNION STEEL'S MILL AT NEW MARKET, NEW JERSEY?"**

*"Sure, but what's in it for me?"*

■ First, this furnace gives you a new definition for precisely controlled atmosphere. It produces the finest quality stainless annealing available in the industry. This, combined with pickling facilities to match, offers you UNION Steel stainless pipe and tube that is guaranteed to perform properly in your plant.

Largest available mill stocks of full finished, drawn; annealed and pickled; plus *Unionweld* in L grade. In stainless tubular products, Union Steel provides quality in quantity.



*leadership through research*

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UNION, NEW JERSEY • MURDOCK 6-5300  
UNION DISTRIBUTOR STOCKS THROUGHOUT THE U. S. A.  
**STAINLESS PIPE AND TUBE**

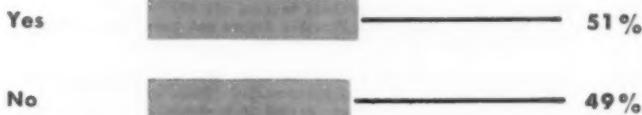
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# PURCHASING OPINION

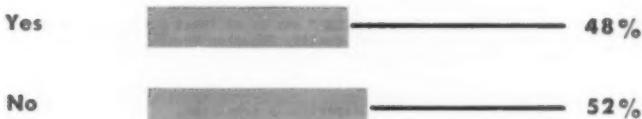
## Are P. A.'s Leasing More Equipment?

Purchasing agents are vitally concerned with the subject of leasing, since they are often responsible for their companies' activities in this field. The growth of leasing in recent years has had an important effect on our industrial expansion and capital goods distribution. We asked a representative cross-section of purchasing agents a number of questions about leasing. Their combined answers follow:

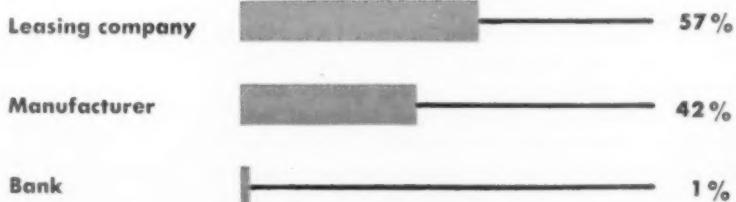
1. Does your company now lease any equipment?



2. Do you plan to do any leasing in 1959?



3. If you are leasing equipment this year, from whom do you expect to obtain the lease?



# SPRING STRESSES

that formerly required premium-priced materials can now be handled by Duraflex,<sup>®</sup> which costs no more than regular phosphor bronze. Write for literature and samples, today.

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August 1, 1956

The American Brass Company  
414 Meadow Street  
Waterbury, Connecticut

Gentlemen,

SUMMARY OF ENGINEERING LABORATORY REPORT No. 8156

SUBJECT: Fatigue Life and Endurance Limit testing of:  
"DURAFLEX" Superfine-Grain Phosphor Bronze and Commercial Quality Phosphor Bronze, 5% (A) spring quality strip material.

SPRINGS: Flat spring strip was made into the usual type of contact springs used in switches, relays and instruments. These springs were deflected at about 1 cycle per second in a specially built fatigue testing machine and the deflections recorded.

STRESSES: The springs were deflected from the initial free position of zero stress to a final position having a bending stress of 77,000 p.s.i. This stress, for phosphor bronze strip is unusually high and is higher than stresses ordinarily recommended for Beryllium-Copper or Stainless Steel for such severe service.

RESULTS: Commercial Quality Phosphor Bronze, 5% (A) springs acquired a permanent set quite early and broke at an average number of deflections of 465,374. "DURAFLEX" springs were still satisfactory, showed no permanent set, no loss of load and no breakage at 4,000,000 deflections.

CONCLUSION: Design stresses for "DURAFLEX" can be at least 50% higher than the stresses for Commercial Quality Phosphor Bronze, 5% (A) as shown in the TOOL ENGINEERS HANDBOOK.

Respectfully submitted,  
THE CARLSON COMPANY

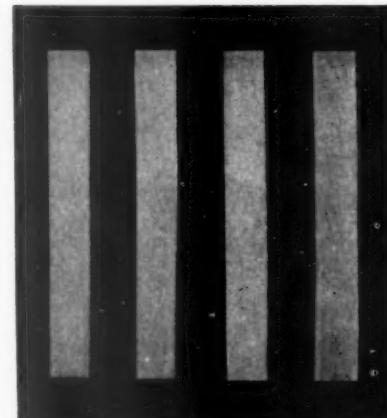
*Harold Carlson*  
Harold C. R. Carlson, P.E.  
Licensed Professional Engineer

HC:R

LICENSED PROFESSIONAL ENGINEER  
NEW JERSEY  
STATE OF NEW YORK



THREE SPRINGS of regular Phosphor Bronze, 5% (A), actual size, took a permanent set at about 200,000 deflections and fractured at an average of 465,374 deflections.



FOUR SPRINGS of Duraflex Superfine-Grain Phosphor Bronze, 5% (A) were still satisfactory after 4,000,000 deflections.

DURAFLEX, available in Phosphor Bronzes (A), (C) and (D), in strip and wire, offers a host of opportunities to cut costs while maintaining or improving quality and performance. For further information and technical help to select the alloy to meet your needs—call in your American Brass Company representative, or write: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

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**DURAFLEX**  
SUPERFINE-GRAIN PHOSPHOR BRONZE  
A product of  
**ANACONDA<sup>®</sup>**

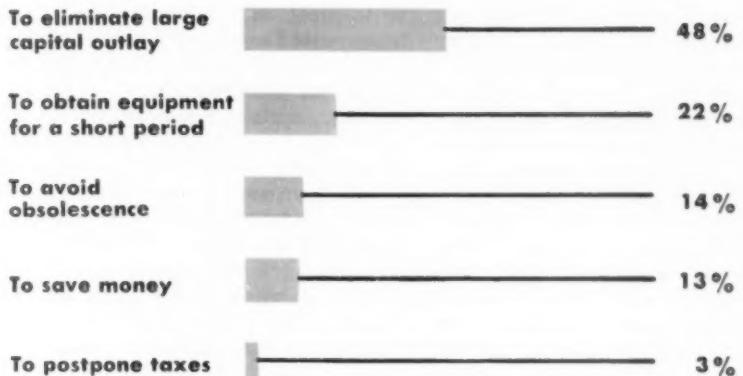
Made by The American Brass Company

## Purchasing Opinion

4. What type of equipment do you plan to lease in 1959?



5. What do you think is the major advantage of leased equipment?



6. Do you find that more suppliers are offering leasing plans this year?

Yes



No



• SPECIAL: For a study of the subject of industrial equipment leasing, don't miss the article starting on page 18. •

# The Straight Facts

By Leonard Sloane

ONE OF purchasing's biggest problems is keeping costs down. The pinch most companies will face in 1959, as a result of higher labor and material costs, is going to require great ingenuity by P.A.'s to keep profits at satisfactory levels.

Leasing is one technique more P.A.'s will be using in '59. In many situations, it pays a company to lease industrial equipment instead of buying it. In fact, some companies now use leasing as frequently as others sign conditional sales contracts.

However, there are many pitfalls involved in leasing. Therefore you must understand exactly what leasing is, its advantages and disadvantages, how to determine how much a lease will cost. Only then can you decide intelligently whether to lease or to buy.

#### **A Method of Financing**

It is best to consider leasing as a method of financing—which should be compared with other, more widely-used business financing techniques. Bank loans, factoring, and lines of credit are similar to leasing in this respect: they are all designed to help a business obtain new capital equipment without paying the full cash value at one time.

Leasing can be defined as a long-term non-cancellable agreement to meet a continuing need. The words "long-term" are the

key ones here, in order to differentiate leasing from renting. Rental plans are designed to provide equipment for a short period or to meet an emergency. P.A.'s have rented equipment for many years; only recently has leasing gained wide acceptance.

Today, virtually everything in your plant can be leased—from fork lift trucks to duplicating machines, from machine tools to heat treating furnaces, from plant fixtures to power tools. Leasing can help you get the machines you need to modernize your production line. You can sign a master lease to include all leased equipment or you can lease each item

**This is the first of two articles on leasing. The next article, which will appear in the March 2 issue, will cover automotive and truck leasing.**

individually.

Before you sign any lease, however, you should understand the pros and cons. Briefly stated, here they are:

#### **ADVANTAGES OF LEASING**

##### **(1) Avoids large cash outlay**

Leasing eliminates the need to put down a large chunk of cash when you buy a new machine.

Even if you were to buy equipment via a conditional sales contract, you would still have to make a down payment of around 25%. With a lease, you can accurately budget your payments over the length of the lease. This gives you flexibility with your capital since you pay for the use of an asset at the moment you're using it. You don't pay for a "bundle" of services from a machine long in advance.

##### **(2) Free working capital for other purposes**

Every time you make a large capital expenditure, you deplete your working capital. If you spend \$100,000 for a machine tool, that's \$100,000 less that can be used in other ways. Since many companies can average between 5% and 12% on their invested capital, that means your \$100,000 machine tool is costing you between \$5000 and \$12,000 a year in profits after taxes. Leasing stretches the use of your capital and keeps your assets liquid, thus creating a decided cash-flow advantage.

##### **(3) Makes equipment available for short-term use**

You might need a specific piece of equipment for a short time or during cyclical periods. Examples: a three-year cost-plus R&D government contract, a peak production year, or a one-time construc-

# on Equipment Leasing

*Leasing industrial equipment can be the answer to your problem*

*when you need new machines and don't have the necessary cash.*

*But leasing is not a cure-all—there are disadvantages that must be considered before reaching a decision. Here's an analysis of what P.A.'s should know about this modern financing method.*

tion job that will take two years to complete. In these instances, it might pay to lease equipment for the period necessary to do the job.

#### **(4) Makes financing easier**

Lease payments—other than those due within the year—generally do not appear on your company's balance sheet as an obligation on the credit side. Conditional sales contracts do.

While the ethics of this situation are debatable (various groups are striving to have all lease arrangements indicated in some manner on balance sheets), the present set-up favors leasing. It keeps your line of credit open at banks, insurance companies, bonding companies, etc., and does not appear as a fixed liability in the financial report. It therefore gives your balance sheet a more favorable asset-to-liability ratio. And it allows you to obtain required equipment when your long-term loan agreements do not permit additional bank financing or your capital structure is not strong enough for conventional financing.

#### **(5) Allows use of modern equipment**

Your company might need a piece of modern equipment in order to keep up-to-date and compete successfully. But you don't have the cash available and financ-

## **Look Before You Lease**

Before you sign a long-term industrial lease, make sure you've checked all the legal and tax angles. That's the advice given by Frank Griesinger, assistant treasurer of Lincoln Electric Company and author of the recent McGraw-Hill Book, "Sale-Leaseback and Leasing." He says:

"If you're considering leasing machinery, real estate, or other fixed assets, remember that most lease contracts require payments totaling more than the outright purchase cost. The lessor must charge enough to cover the cost of the equipment, the cost of carrying your account, and, of course, make a profit. Regardless of this fact, lease contracts may be very helpful.

"The purchasing executive should ask a pertinent question about any lease contract: 'Is this plan sound from a tax standpoint?' Ask the financial officers of your company about the offered plan. They may wish to secure advice from tax and legal counselors. This is desirable because the government views leasing as a tax postponement device.

"I recently learned that two



Frank K. Griesinger

manufacturers who offer long-term equipment lease plans were audited by Internal Revenue examiners. Leases which contained no purchase options were included in the audit. Lists of customers acquiring machines under lease contracts were sent to other Revenue offices which audit these districts. Evidently, the government claims that rental charges treated as expense deductions were actually capital expenditures, subject to depreciation over a longer period.

"The re-opening of tax returns filed in previous years might cause difficulty to your accounting department. It would seem best to ask questions about the tax aspects of lease plans before contracts are signed."

**EXHIBIT I. COMPARISON OF METHODS OF ACQUIRING EQUIPMENT  
VALUED AT \$100,000 WITH A USABLE LIFE OF 10 YEARS AND NO SCRAP VALUE**

Method of financing equipment	Year	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
		Cash on hand at beginning of year	Cash income before d, e, f, g, h	Interest	Depreciation (noncash expense)	Rent (cash expense)	Income tax	Loan or purchase payment	(c) + (d) + (f) - (g) - (h)	remaining from year's operations	Cash on hand at end of year (b + i)	Cash excess or deficiency of Rental Plan compared with other plans
Rental Plan:	1	\$200,000	\$ 100,000		\$ 24,000	\$ 34,020		\$ 41,980	\$241,980			
	2	241,980	100,000		24,000	34,020		41,980	283,960			
Five-year lease, with five one-year renewals	3	283,960	100,000		24,000	34,020		41,980	325,940			
	4	325,940	100,000		24,000	34,020		41,980	367,920			
	5	367,920	100,000		24,000	34,020		41,980	409,900			
Financing and renewal rate: 4% per year of equipment list price	6	409,900	100,000		4,000	44,420		51,580	461,480			
	7	461,480	100,000		4,000	44,420		51,580	513,060			
	8	513,060	100,000		4,000	44,420		51,580	564,640			
	9	564,640	100,000		4,000	44,420		51,580	616,220			
	10	616,220	100,000		4,000	44,420		51,580	667,800			
		<u>\$1,000,000</u>			<u>\$140,000</u>			<u>\$192,200</u>			<u>\$467,800</u>	
		<u>\$1,000,000</u>			<u>\$140,000</u>			<u>\$192,200</u>			<u>\$467,800</u>	
Purchase — Cash:	1	\$200,000	\$ 100,000		\$ 18,180	\$ 37,046	\$100,000	—	37,046	\$162,954	\$79,026	
	2	162,954	100,000		16,360	37,093		62,007	224,961	58,999		
(Net 30 days)	3	224,961	100,000		14,550	38,934		61,066	286,027	39,913		
Depreciation method: sum-of-the-years-digits	4	286,027	100,000		12,730	39,880		60,120	346,147	31,773		
	5	346,147	100,000		10,910	40,827		59,173	405,320	4,380		
	6	405,320	100,000		9,090	41,773		58,227	453,547	— 2,067		
	7	463,547	100,000		7,270	42,720		57,280	520,827	— 7,767		
	8	520,827	100,000		5,450	43,666		56,334	577,161	— 12,521		
	9	577,161	100,000		3,640	44,607		55,393	632,954	— 16,334		
	10	632,954	100,000		1,820	45,554		54,446	687,000	— 19,200		
		<u>\$1,000,000</u>			<u>\$100,000</u>			<u>\$413,000</u>			<u>\$497,000</u>	
		<u>\$1,000,000</u>			<u>\$100,000</u>			<u>\$413,000</u>			<u>\$497,000</u>	
Installment Plan:	1	\$200,000	\$ 100,000	\$ 5,738	\$ 18,180	\$ 34,063	\$ 38,500	\$ 21,699	\$221,699	\$20,281		
	2	221,699	100,000	\$ 5,355	16,360	35,208	12,600	46,837	268,536	15,424		
Financing rate: 4 1/4% per year of list price	3	268,536	100,000	4,590	14,550	36,547	10,800	48,053	316,599	10,241		
	4	316,599	100,000	4,207	12,730	37,693	9,900	48,200	364,799	3,121		
	5	364,799	100,000	3,825	10,910	38,838	9,000	48,337	413,136	— 3,236		
Down payment: \$25,000	6	413,136	100,000	3,060	9,090	40,182	7,200	49,558	462,694	— 1,214		
	7	462,694	100,000	1,913	7,270	41,725	4,500	51,862	514,556	— 1,496		
Note amount: \$75,000	8	514,556	100,000	1,530	5,450	43,870	3,600	52,000	566,556	— 1,916		
	9	566,556	100,000	1,147	3,640	44,011	2,700	52,142	618,698	— 2,478		
Finance charges: \$31,875	10	618,698	100,000	\$10	1,820	45,288	1,200	53,002	671,700	— 3,900		
		<u>\$1,000,000</u>			<u>\$31,875</u>			<u>\$306,425</u>			<u>\$471,700</u>	
		<u>\$1,000,000</u>			<u>\$31,875</u>			<u>\$306,425</u>			<u>\$471,700</u>	

Source: Douglas C. Leffingwell, C.P.A. of Welsh and Leffingwell, Cleveland.

This chart illustrates the differences in cash-flow resulting from consideration of three different methods of asset acquisition. "Cash income" is considered the total cash available to a corporation in the 52% tax bracket from its year's operation. Calculations on the rental plan are based on published rates for AAA-1-rated companies. Under certain circumstances, cash-flow differences would be reduced by any initial deposit required by the leasing company. Figures on the installment plan are based on advertised plans commercially available for certain types of equipment.

ing can't be obtained. Leasing can be used here to get the machine you want now without waiting two, three, or four years for the cash to be generated internally.

## (6) Postpones taxes

This last point needs some clarification. Contrary to the claims of some organizations, leasing does not eliminate or avoid taxes—it merely postpones them to a later date. And this is true only in certain specific instances.

Leasing charges are legitimate.

ly deductible as business expenses under most circumstances, according to the Internal Revenue Service. In this way, leasing reduces taxable income for the current year.

Then too, leasing can offer a tax advantage to companies that find their equipment becomes obsolete more quickly than government depreciation tables permit. Take this situation, for instance:

A firm knows through experience that a certain piece of equipment will have to be replaced in

seven years. But the depreciation table permits depreciation only over a 15 year period. By leasing this equipment for seven years, the company can deduct the full cost of the equipment from taxable income in seven years. Thus it can get full tax deductions during the useful life of the machine.

### **Still Uncertain**

At the present time, there is some confusion as to the government's position on tax deductibility for leasing contracts. There

exists the possibility Washington might insist that leasing expense deductions be subject to depreciation over a longer period of time.

There are certain conditions that must be definitely met, however, if the lease deductions are to be approved by the government. While these conditions vary and change from time to time, the important point to remember is that the lease must be considered as such by lessor and lessee. If your lease payments are applied to the purchase price or an option to purchase at a nominal sum is included in the lease, the tax authorities will probably consider it a conditional sales contract and tax accordingly.

The fact remains, though, that taxes per year are generally lower when you lease rather than buy. The Internal Revenue Service has stated as much in Ruling 55-540 when—in referring to a long-term lease—it declared: "A significant motive, may, in some cases, be the tax advantages which might result because of the different timing of the deductions for rent as compared to depreciation."

### DISADVANTAGES OF LEASING

#### (1) It costs more

It is more expensive in the long run to lease than to buy for cash. It's also true that, over a period of years, leasing costs more than most conditional sales contracts. The reason—leasing companies must borrow money, too, and their own expenses and profits are added to the basic cost of the financing. The P.A.'s company, of course, ends up paying for this.

#### (2) Can't get specialized equipment

Generally speaking, leases cannot be obtained for highly specialized equipment. This is because the equipment would be of little value to any other manufacturer after the term of the lease expires. When the specific job is completed, to a large extent the machine's usefulness is also at an end.

#### (3) Lack of freedom in using equipment

In some respects, management may lose its complete freedom in

the use of leased machines. The contract may impose limits on the use of the tools or the lessor may insist on certain forms of supervision that are inconvenient to the lessee. For example, the machine usually cannot be removed from the plant during the period of the lease. Also, leasing charges might be based on the number of hours the machine is in operation or on the output of the particular machine.

#### (4) No asset on which to borrow

Naturally, when you lease a machine you do not have title to it. This could limit you if you wanted to borrow money and did not have enough collateral. When you buy a machine—either with cash or on time—you have a tangible asset on which you can get loans.

#### (5) Fixed payments must be made

When you sign a long-term lease, you're obligating your company to make fixed payments over an extended period of time. In a period of sagging profits—like the year 1958, for example—this can strain your cash position quite heavily and put you in an uncomfortable financial position.

#### (6) No pride of ownership

Many businessmen feel this way: "it's my business, I own it, and I want to own everything in it." Some of the business practices of these men are based more on habit than on logic. To this group, then, leasing deprives them of ownership of their equipment—and/or plant—and creates a situation in which they feel uncomfortable.

### The Beginning of Leasing

The birth of big-time industrial leasing came around 1953 when many manufacturers found that they needed more capital equipment but didn't have the cash available. Through leasing, these companies found they could keep their working capital *working* and still obtain the equipment they needed to turn out the goods. As a result, around \$450 million worth of equipment was leased in 1953 alone.

There's no doubt that leasing today is big business. In 1958 about \$1.5 billion worth of capital equipment was on lease. This represents more than a 25% increase over the previous year. About 10% of all machinery sales are connected with some sort of leasing arrangement. Some individual leases are written for as much as \$3 million or \$4 million.

(Please turn to page 196)

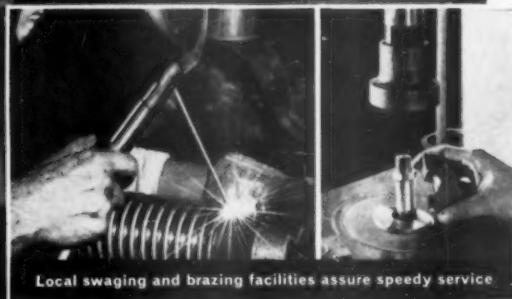
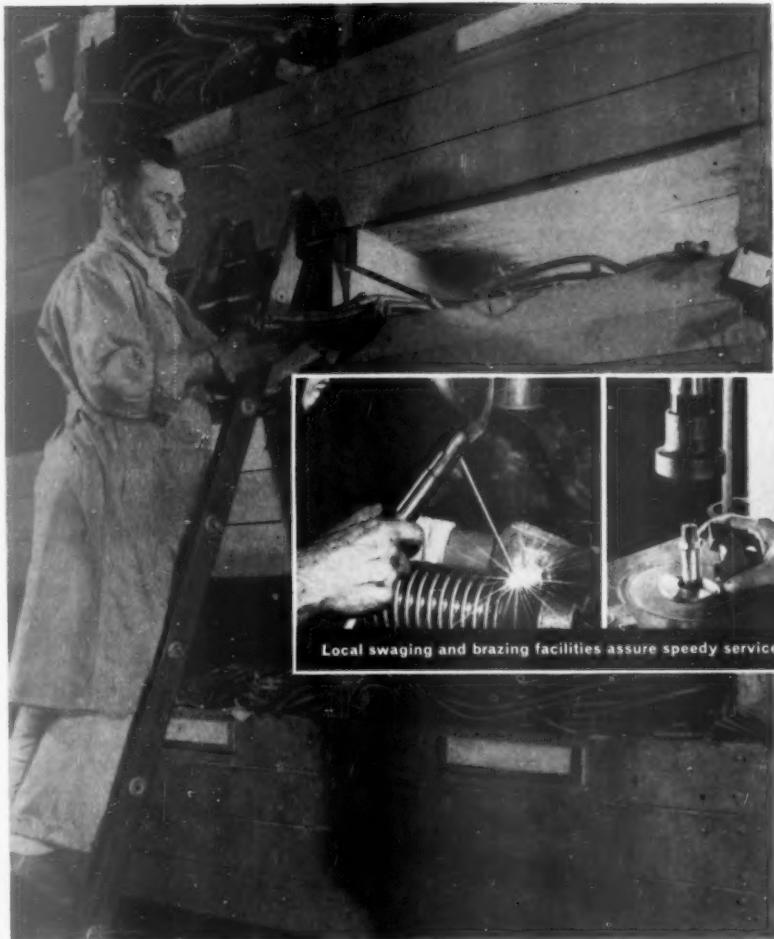
### The Pros and Cons of Leasing

#### ADVANTAGES

- (1) Avoids large cash outlay
- (2) Frees working capital for other purposes
- (3) Makes equipment available for short-term use
- (4) Makes financing easier
- (5) Allows use of modern equipment
- (6) Postpones taxes

#### DISADVANTAGES

- (1) It costs more
- (2) Can't get specialized equipment
- (3) Lack of freedom in using equipment
- (4) No asset on which to borrow
- (5) Fixed payments must be made
- (6) No pride of ownership



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Alaskan Copper & Brass  
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PURCHASING

# Washington Report

## Administration Fights to Keep Prices From Spiraling Upward

**T**here is little faith here in the Administration's efforts to hold the price line. The overall view is that prices will neither stand still nor race ahead. However, a gradual rise after mid-year is considered inevitable.

The major question is: what can be done to halt price rises? The White House thinks steep wage hikes have been the principal cause of rising prices. Both the President and his economic advisers take the position that the wage issue is critical in determining prices.

During the last several years, there has been loose talk by some of "administered prices", established by a small monopoly group within an industry. There have also been claims of "industrial oligarchy," where a few companies within an industry can set prices.

### **Can't Measure Productivity**

It is generally agreed by both industry and labor spokesmen that where unit output per man-hour can be increased, wage rates should reflect this improvement. In other words, labor should share increases in productivity.

But measurements of industrial productivity are so inexact that they can hardly serve as a basis for current wage negotiations. Statistics and studies establish a productivity standard for a year or two back—but can hardly project into the current year.

Nevertheless, everybody has been getting into the productivity act. Labor union leaders have forecast large increases in productivity for the current year, without even a vague knowledge of the rate of industrial activity.

White House spokesmen have been warned recently by their

technical advisers that loose talk on productivity leads to a whole gamut of false assumptions. And again, as was the case last year, President Eisenhower has called on management, labor, and the public to work together to hold the price line.

The current White House position is that businessmen must wage an unceasing war against costs. Leaders of labor unions also have a particularly critical role to play.

There is nothing that the government intends to do directly to keep prices in line. Federal Reserve System spokesmen point out that they will maintain a flexible situation. If, however, demand for money seems to be pushing the economy—thereby boosting prices—then the Federal Reserve will move in to hike the rediscount rate.

Present plans call for no direct controls on consumer credit.

### **• Steel, Aluminum Wages to Rise**

**B**oth the steel and aluminum industries face an increase in wage rates as a result of negotiations with the steelworkers in mid-year.

Present prices are stable. In aluminum, there is a general freeze on prices. United States and Canadian producers are guaranteeing prices through June of any metal ordered now.

The aluminum industry dropped prices by 2¢ a pound on April 1 of last year. After the higher wage rate was granted, the price was increased by 7¢ a pound. At that time, aluminum producers stated that the increase did not fully reflect the impact of higher wage scales and other increased cost factors.

In steel, the average increase in hourly wages last year was



**Maurice Stans, Director of the Budget, testifying before a Senate committee. Mr. Stans is one of the architects of President Eisenhower's balanced budget for fiscal 1960.**



**200-ton flying press**, so called because of its unique rotary die action, fabricates coil steel on-the-fly, with dies and strip in continuous motion. Inset shows FLEXLOC self-locking nuts used in fastening die assembly. For maximum clearance, thin-type FLEXLOCS were selected for this particular application. Despite constant pounding and vibration, they never require retightening.

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For More Information Write No. 165 on Inquiry Card—Page 32

## Washington Report

9¢-an-hour. A 4¢-an-hour cost-of-living increase was added on July 1, and another cent-an-hour on January 1 of this year. Prices of steel were increased on August 7 by 3%—or an average of \$4.25 a ton.

The outlook for this year in both industries is loaded with ifs. A strike cannot be ruled out altogether, and the early indications are that the union will be looking for a "big" package.

### • New Committees To Fight Inflation

One area where the government can directly affect prices is—its own buying.

As the world's biggest single buyer, the federal government sets the tone of a number of markets. The question of how flexible the government can be is highly debatable. A whole range of agricultural prices is shored up by government guarantees and subsidies. In the industrial raw material markets, import tax levies have a major impact on some prices.

What the government now proposes is a four-phase effort to hold the price line as far as it can by its own actions. The core of this effort is a balanced budget.

President Eisenhower recently set up a new committee—the Cabinet Committee on Price Stability for Economic Growth. Vice President Nixon was named to head the group. This underscores the importance the President places on the fight against inflation. According to the White House, the panel "will conduct such studies as it finds needed for those factors affecting the stability of costs and prices that will help prevent price increases."

Presumably the committee might ask some searching questions wherever a union demand for higher wages would inevitably lead to a higher price level. At any rate, this high-level group will be a continuous sounding board to focus public attention on the need for stable prices.

The President also named a committee to study government programs' impact on prices. This committee is under the leadership of Chairman Saulnier of the Council of Economic Advisers.

### • Congress Plans Probe Of Price Policy

On the Congressional side, activity will be fervid. Prices and inflation are bound to be hot potatoes. The Administration is seeking to draw a line between its position and that of the so-called "spenders", while the Democrats show no inclination to let themselves be put in the latter category.

The Joint Economic Committee of Congress has been probing the price situation. This is now expected to be broadened, with more showmanship added.

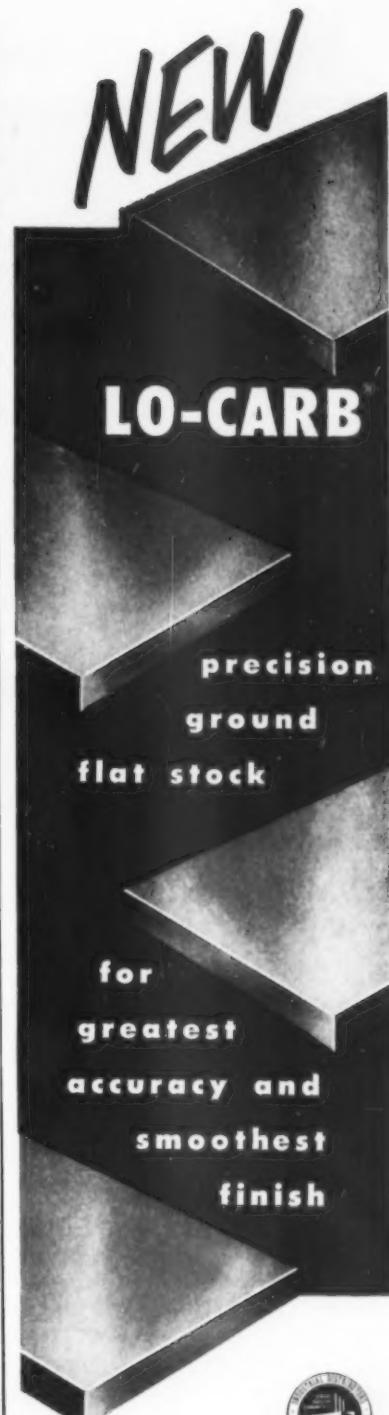
The White House has called on Congress to amend the Employment Act of 1946 to make reasonable price stability an explicit goal of federal economic policy, just like maximum employment and productivity. It feels that such an amendment would strengthen the government's hand in fighting inflation. This proposal will probably lead to hearings about the general subjects of prices and wages.

The proposed amendment will not have any effect on the administration of the Act, however. But it will enable the government to lash out still further at price increases.

### • BLS Study Shows Many Price Changes

A detailed study of price movements, conducted by the Bureau of Labor Statistics, gives the lie to charges that price movements have been influenced by monopoly decisions.

The study was prepared by BLS for the Joint Economic Committee, and includes a mass of detail on price movement over the years. Specifically, it points up



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## Washington Report

the fact that there has been a great deal of movement in prices of raw materials and farm products—even daily fluctuations.

These price changes tend to flatten out with the degree of fabrication involved in the product. Thus, highly complex machinery showed little fluctuation.

Price trend analysts explain that in the whole range of prices, covering 1789 commodities over a ten year period, there was little that could not be explained by actual market conditions. The price study will be a significant factor in blunting charges that our industrial price structure is more the product of "administered prices" than of the normal play of the market.

### • Drive Against Mergers To Be Continued

The government drive to discourage mergers of industrial companies will continue. Effort will be largely directed against "significant" mergers, where either the companies involved are large or the product is of major importance (either as a raw material or to consumers).

Two government agencies share responsibility for watching merger trends—the Department of Justice and the Federal Trade Commission. There is no division between the two as to what areas they will tackle. Each has the same function and applies the same tests. To keep from overlapping their efforts, there is a close liaison.

Here's how it works: both agencies get their data on proposed or consummated mergers through the financial journals, the trade press, and various financial reporting services. Each has a rough screening procedure. If either feels there is a basis for an investigation, it checks first with the other agency.

This dual stewardship has been criticised in various quarters. But no one has been able to suggest some other approach that would still be consonant with the Clayton and Sherman Acts.—A. N. Wecksler

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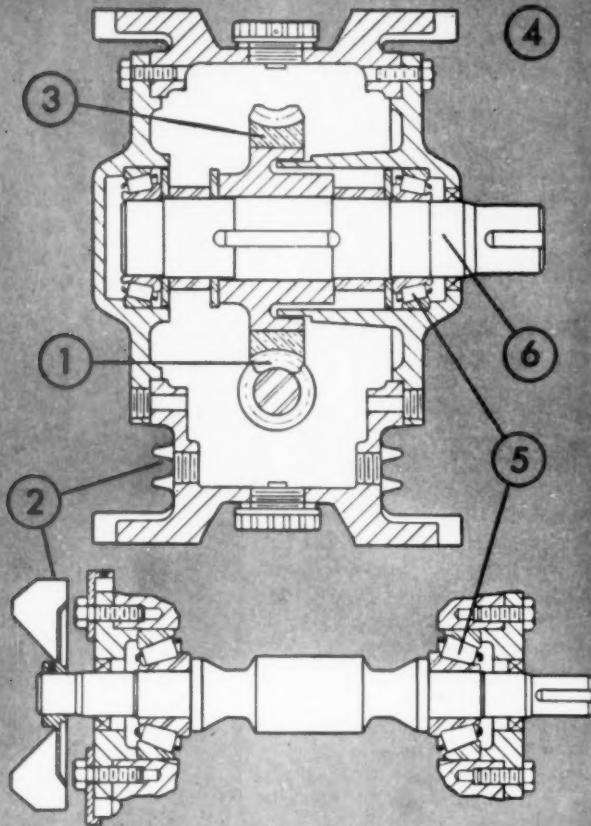
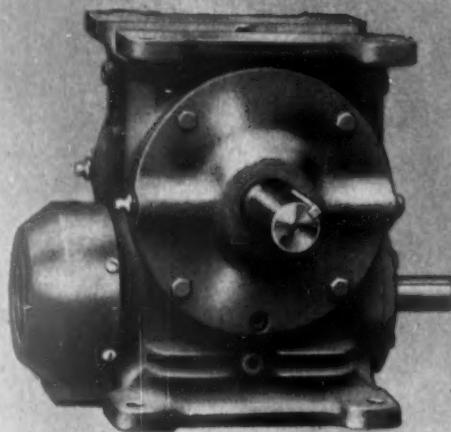
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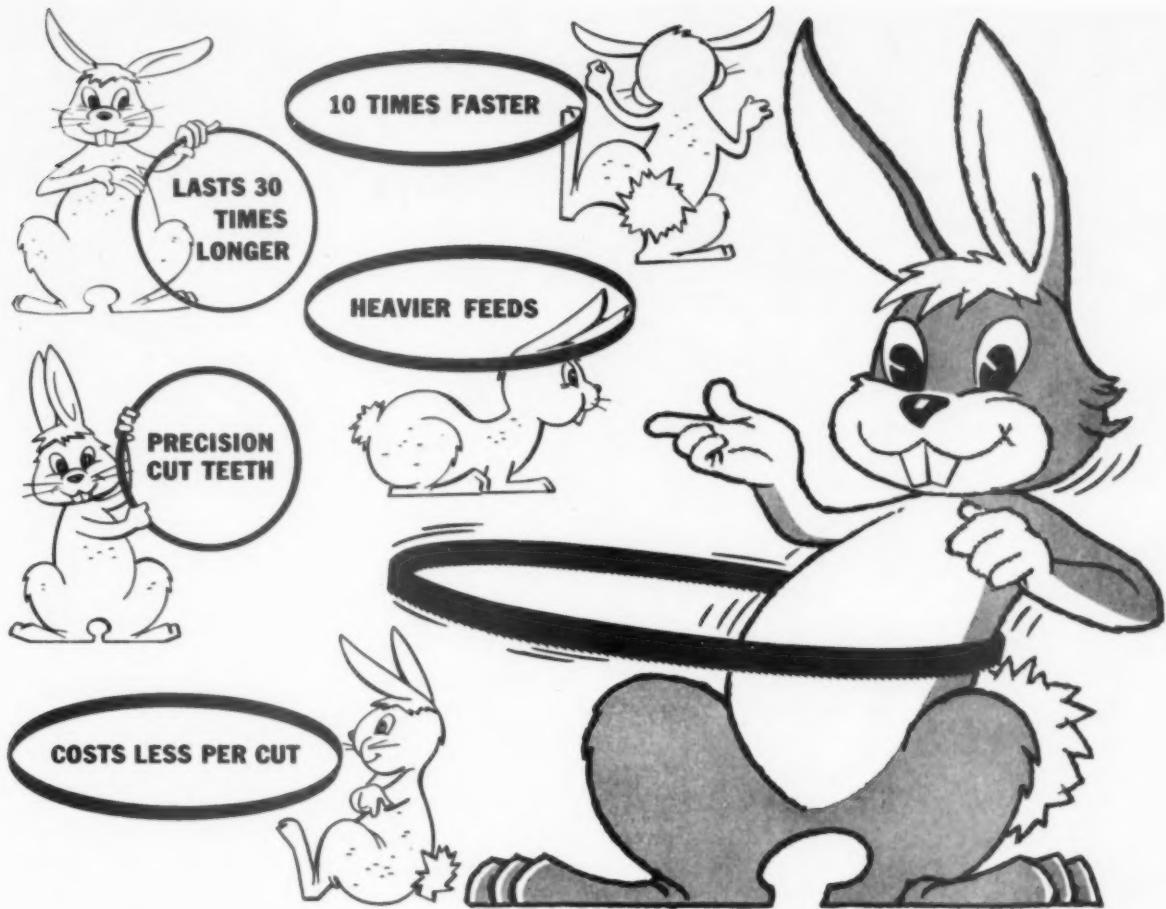


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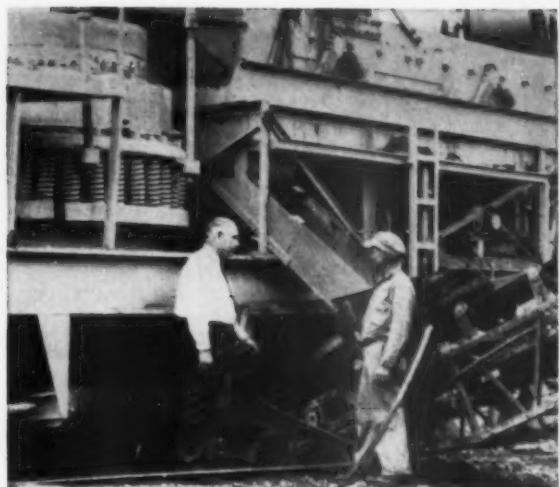
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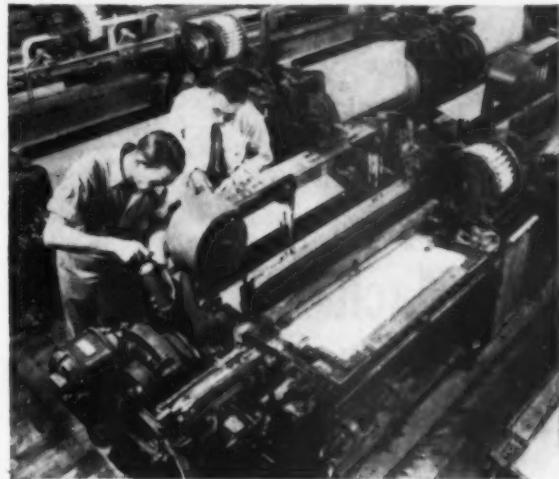
New Gulfcrown Grease E.P. will give you plenty of proof that Gulf makes things run better. It resists heat, cold, moisture and mechanical breakdown. It has excellent oxidation stability and protects against corrosion.

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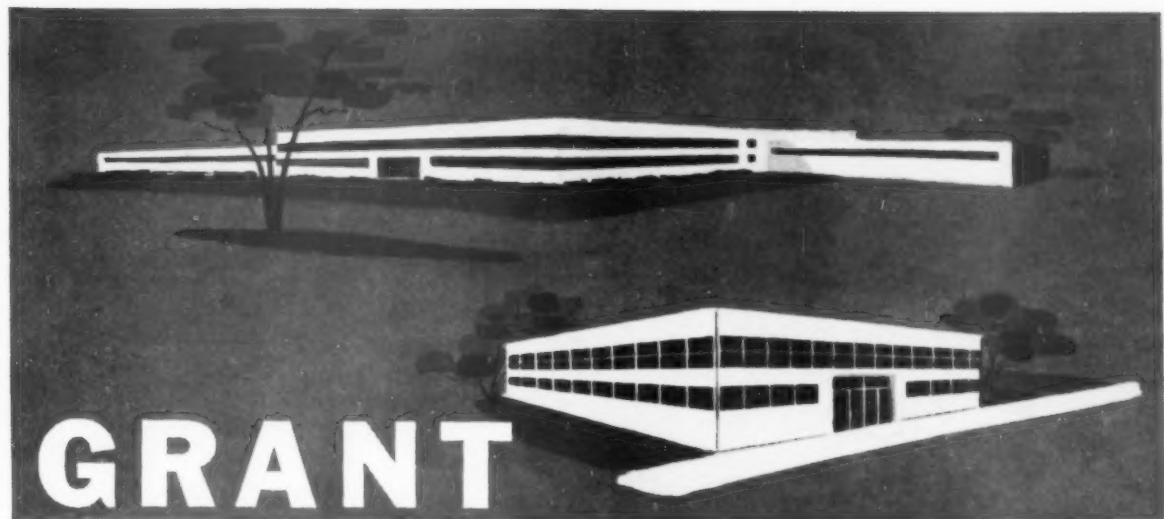
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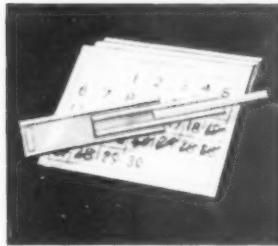
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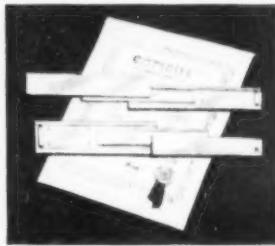
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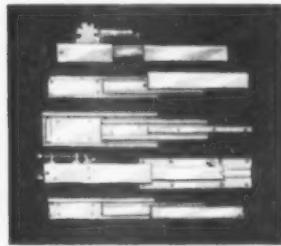
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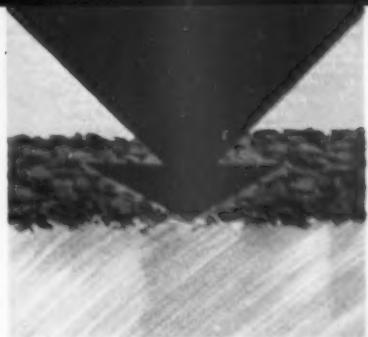
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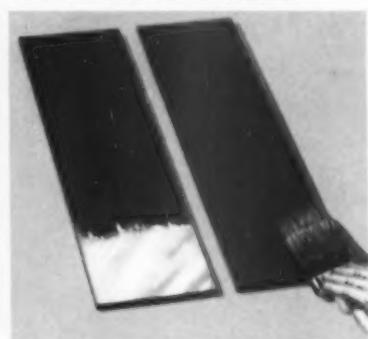
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**Rust preventive coating!** All Superior SAE Hydraulic Tubing is shipped to you specially coated with a rust preventive on both inside and outside surfaces. Not just a coating of oil!

Special processing gives Superior hydraulic tubing an unusually bright, lustrous, smooth, clean ID and OD finish. No premium costs to pay for bright, bright surfaces with Superior tubing!

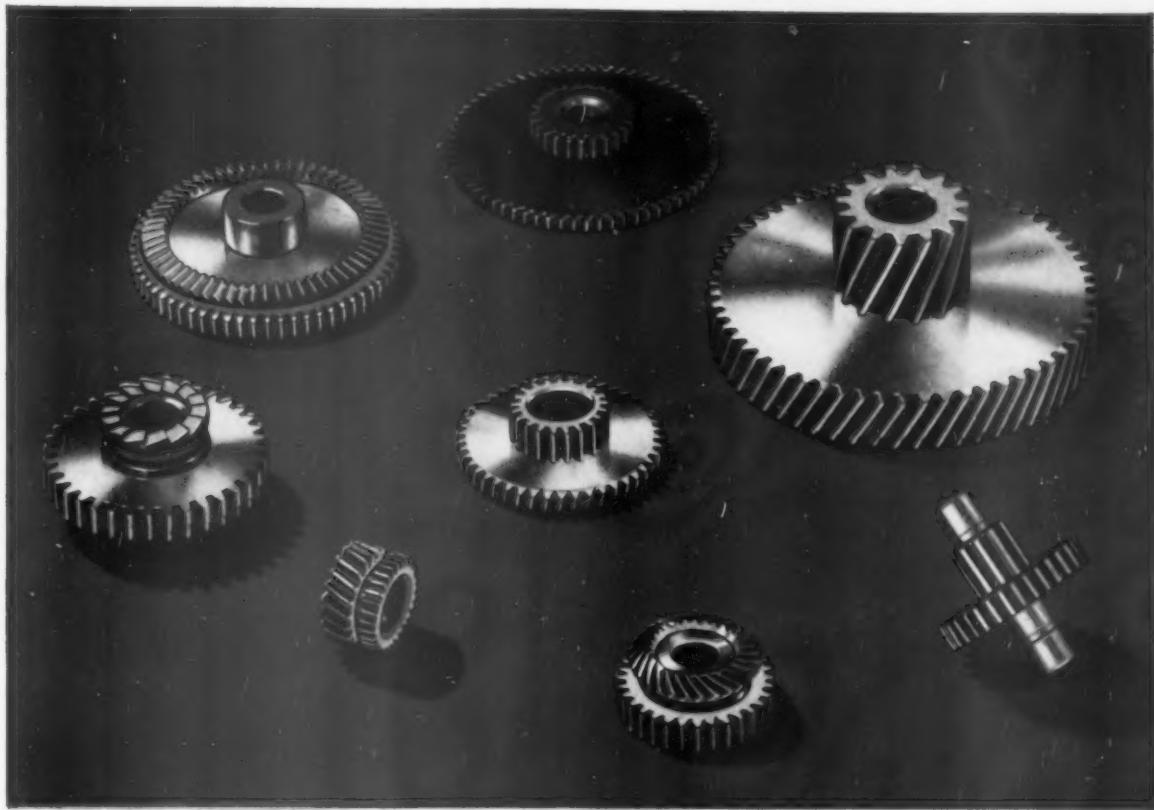
Available coast to coast through leading warehouse distributors, each a steel service center. Contact your nearest Superior distributor—or, for more information, send for a free copy of Bulletin 39. Superior Tube Company, 2034 Germantown Ave., Norristown, Pa.

**Superior Tube**  
The big name in small tubing

**NORRISTOWN, PA.**

*All analyses .010 in. to 5/8 in. OD—certain analyses in light walls up to 2 1/2 in. OD*

West Coast: Pacific Tube Company, 5710 Smithway St., Los Angeles 22, Calif. • RAYmond 3-1331  
For More Information Write No. 178 on Inquiry Card—Page 32



## Do Your Gear Applications Require CLUSTERS?

If you are producing Aerial Cameras—Windshield Wipers—Tape Dispensers—Fire Control Apparatus—Computing Equipment—or many other items where combinations of different Gear types are needed, G.S. Clusters will give you the maximum in precision design. Spurs or Helicals in combination with straight and spiral bevels, spur pinions, worm gears, and clutches are all made with the consistent "better-than-spec" quality for which G.S. is famous all over the country.

Perhaps you have an irksome problem involving such clusters—or some other Small Gearing application. G.S. engineers will be glad to sit down with you and discuss solutions, in the light of our more than four decades of experience in every area of U.S. industry where precision Small Gearing is used in quantity. Why don't you write or phone us—today?

**SEND FOR G.S. illustrated folder!** See where and how we mass-manufacture Small Gearing to uniformly fine tolerances. Folder contains 23 pictures of Small Gears, plant view, as well as Diametral and Circular Pitch Tables. Ask for your copy on company stationery, please!



**GEAR**  
**Specialties, Inc.**

2635 WEST MEDILL AVENUE  
CHICAGO 47, ILLINOIS

SPURS • SPIRALS • HELICALS • BEVELS • INTERNALS  
WORM GEARING • RACKS • THREAD GRINDING

WORLD'S LARGEST EXCLUSIVE MANUFACTURERS  
OF FRACTIONAL HORSEPOWER GEARING

*43 Years of Specializing in Small Gearing!*

For More Information Write No. 179 on Inquiry Card—Page 32

A

new concept

to simplify your spring

design and purchasing problems

# Select-A-Spring

ready-to-use engineered standard springs

Now you can select compression or extension springs from hundreds of ready-to-use, engineered standard-specification sizes. No fuss or paper work—no blueprints or drawings necessary. Select-A-Spring enables buyer or designer to pinpoint his needs without delay. Simply match your requirements to the Select-A-Spring list, order by catalog number, quantity and material. Especially convenient where quantities are moderate.

Select-A-Springs are pre-engineered, using

wire certified to military and aircraft specifications, in various lengths, diameters, rates, and loads up to 20 lb. They meet industry and military standards. Material is either music wire or stainless steel. Compression springs are squared and ground. Extension springs have regular loops. Other ends and loops optional.

*Whether your need is immediate or future, write now for the A.S.C. Select-A-Spring list. Keep it handy as a time-saving, useful spring service.*



General Offices: Bristol, Connecticut

Associated Spring Corporation

Wallace Barnes Division, Bristol, Conn. and Syracuse, N. Y.  
B-G-R Division, Plymouth and Ann Arbor, Mich.

Gibson Division, Chicago 14, Ill.

Milwaukee Division, Milwaukee, Wis.

Canadian Subsidiary: Wallace Barnes Co., Ltd., Hamilton, Ont. and Montreal, Que. Puerto Rican Subsidiary: Associated Spring of Puerto Rico, Inc., Carolina, P.R.

Raymond Manufacturing Division, Corry, Penna.

Ohio Division, Dayton, Ohio

F. N. Manross and Sons Division, Bristol, Conn.

San Francisco Sales Office, Saratoga, Calif.

Seaboard Pacific Division, Gardena, Calif.

Cleveland Sales Office, Cleveland, Ohio

Dunbar Brothers Division, Bristol, Conn.

Wallace Barnes Steel Division, Bristol, Conn.

**LOOK for safeguards in industrial handcleaners**



## SOOTHING LANOLIN

A rich lanolin content in West LAN-O-KLEEN Handcleaner combats the depletion of natural skin oils during washing. It has a retarding effect on the defatting action of soap. As determined by laboratory tests. And confirmed by years of industrial experience.

The lanolin in LAN-O-KLEEN is not milled into the soap by conventional methods. It is impregnated into a corn meal base by an exclusive process. In this way a higher content is achieved. But more important, the emollient is "free" lanolin. By being "free" its soothing and softening action is more positive and beneficial.

LAN-O-KLEEN offers still further advantages. Its corn meal base gently soaks up potential skin irritants with a soft, sponge-like action. A balanced combination of soaps pro-

vides high sudsing without excessive hand rubbing. Each pound bulks up to 50% more than most powdered soaps—and lowers costs with proportionately more washings.

**FREE TRIAL OFFER.** We'd be glad to supply a dispenser and five pounds of LAN-O-KLEEN for free trial. Or if you prefer, we'll send a sample for evaluation. Just call your nearby West office. Or mail the coupon below to our Long Island City headquarters, Dept. 15.

Supply trial dispenser and 5 lbs. of LAN-O-KLEEN.  
 Send a packet of LAN-O-KLEEN for evaluation.

Name \_\_\_\_\_

Position \_\_\_\_\_

PROGRAMS AND SPECIALTIES  
FOR PROTECTIVE SANITATION  
AND PREVENTIVE MAINTENANCE



WEST DISINFECTING DIVISION

WEST CHEMICAL PRODUCTS INC.  
42-16 West Street, Long Island City 1, New York  
Branches in principal cities  
CANADA: 5621-23 Casgrain Avenue, Montreal

←For More Information Write No. 180 on Inquiry Card—Page 32  
FEBRUARY 16, 1959

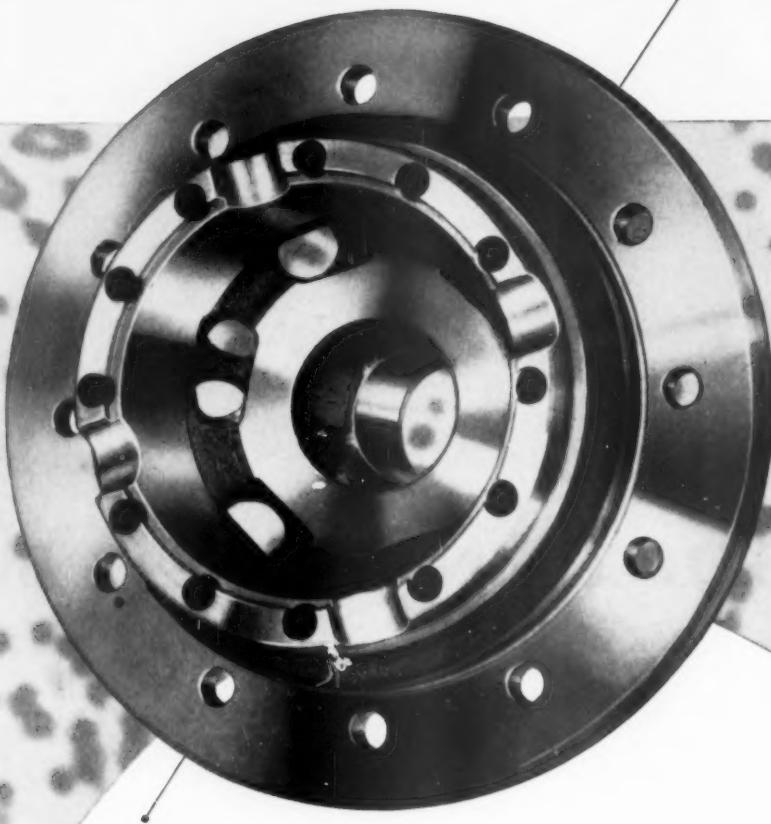
For More Information Write No. 181 on Inquiry Card—Page 32  
41

*is your problem*

# machinability?

**NATIONAL HTM CASTINGS**

*are the answer*



There are many reasons for specifying HTM (Pearlitic Malleable) castings for your product. One is *machinability* of 70-90 percent (B1112 steel = 100).

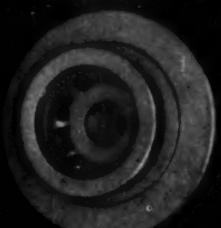
But there are many other equally valid reasons. High ultimate strength . . . extreme wear resistance under heavy loads and high speeds . . . non-seizing qualities . . . air or liquid quenching . . . ability to be smooth-finished.

So when you're looking over the materials field, don't overlook the advantages of HTM castings. For HTM metal can be cast by either the shell mold,  $\text{CO}_2$ , or green sand methods. This means production costs tumble . . . performance and saleability of your product go up.

#### *Important Physical Properties*

Brinell	163 to 302*
Yield, psi	48,000 to 85,000*
Ultimate, psi	70,000 to 110,000*
Elongation, %	7 to 2*

\*Depending upon grade



**NATIONAL MALLEABLE and STEEL CASTINGS COMPANY**

*Established 1868*

*Cleveland 6, Ohio*



*The nation's largest independent producer of malleable and pearlitic malleable*

Metallurgical Memo from General Electric



## 260 ways to "package" a pinch of powder

Metallurgical Products Department reports on a line  
of 260 locally-stocked Carboloy® cemented carbide inserts  
that slashes inventory and special-order costs

Carboloy cemented carbides start as metal powders — end as man-made metals in a variety of disposable inserts unmatched in the industry.

And that's where you save with Carboloy cemented carbides. You choose from 260 different inserts — 11 styles — 7 cutting grades — in any size, thickness, radius, or shape you need. You get an insert that's almost tailor-made for your particular job without costly special-ordering; and you get it *fast*, from a *local* distributor who carries your inventory *for you*.

All Carboloy cutting tools are stocked by your local Authorized Carboloy Distributor. Call him (see the Yellow Pages, under "Carbides"); or write: Metallurgical Products Department of General Electric Company, 11143 E. 8 Mile Ave., Detroit 32, Michigan.

METALLURGICAL PRODUCTS DEPARTMENT

GENERAL  ELECTRIC

**CARBOLLOY® CEMENTED CARBIDES**

CARBOLLOY® CEMENTED CARBIDES • MAN-MADE DIAMONDS • MAGNETIC MATERIALS • THERMISTORS • THYRITES • VACUUM-MELTED ALLOYS

←For More Information Write No. 182 on Inquiry Card—Page 32  
FEBRUARY 16, 1959

For More Information Write No. 183 on Inquiry Card—Page 32  
43

United States Steel

TRADEMARK

United States Steel

TRADEMARK

# Announcing . . . a great name in strapping



## Steel Strapping

The former USS Gerrard Steel Strapping Division is now operating as an integral part of the U. S. Steel Supply Division. Gerrard know-how, combined with Supply Division facilities, now make *U. S. Steel* the name to keep your eye on in steel strapping.

### And here's what it means to you:

A complete strapping service—strapping, tools, technical assistance—from 19 service centers!

1. USS Steel Strapping service is now available out of 19 U. S. Steel Supply Division Steel Service Centers. Immediate service no matter where you are located. A complete steel strapping program for everyone . . . strapping, strapping machines, technical assistance.
2. A greatly expanded field service force—a nationwide staff of strapping specialists *plus* the entire U. S. Steel Supply field organization—is available to meet your strapping needs.
3. A greatly expanded engineering force is now hard at work developing new concepts and producing new powerized equipment to lower strapping costs.
4. Order steel strapping—Round or Heavy-Duty Flat—from any one of a *complete* nationwide network of Strapping Service Centers, and it will be shipped to your branch plants from the *nearest* U. S. Steel Service Center.

### Lower Strapping Costs . . . with new powerized equipment!

1959 is the big year for you—the year when you'll see more new ways to cut your strapping costs than ever before. They're coming soon. You can use them soon. And 1959

is only the beginning . . . the "kick-off" year in a big new program by the great name in strapping—U. S. Steel.

USS is a registered trademark



United States Steel

Formerly Gerrard Steel Strapping Department

U. S. Steel Supply  
Division of



United States Steel

For More Information Write No. 185 on Inquiry Card—Page 32



## Good bet: You're paying for lubricants you don't need

Does this case sound familiar to you?

The purchasing department of a midwest firm was forced to buy lubricants on the recommendation of every department head, foreman or even operator. Inventory—often duplicated—was scattered all over the plant, yet shortages in one spot were never related to overstocks in another. The result: costly overstocking, extra handling, increased dangers of misapplication.

Purchasing realized they had a problem—

instituted an Organized Lubrication Plan. Now they use 20 lubes instead of 97, have cut their purchase orders from 300 to 12 per year. Direct savings are estimated at thousands of dollars annually.

Can Organized Lubrication save money in your plant? Contact your local Texaco Engineer or write for "Management Practices that Control Costs via Organized Lubrication." The Texas Company, 135 East 42nd Street, New York 17, N. Y. Dept. P80.



## LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

For More Information Write No. 186 on Inquiry Card—Page 32  
46

For More Information Write No. 187 on Inquiry Card—Page 32→  
PURCHASING

TUNE IN... Metropolitan Opera  
Radio BROADCASTS  
every Saturday afternoon

**Contact one dependable source for non-ferrous supplies...FEDERATED.**

You have the most comprehensive line of available non-ferrous materials to select from. Through the widest variety of products, the most stringent production controls, and the most experienced and extensive application assistance—Federated is your supply headquarters for: Non-ferrous casting metals, aluminum, copper base, zinc base: Solders, Babbitt metals: Lead products; Plating anodes and chemicals; Low melting alloys; Galvanic anodes; Type metals; Zinc dust. Federated Metals Division, 120 Broadway, New York 5. In Canada: Federated Metals Canada, Ltd., Toronto and Montreal.

**FEDERATED METALS DIVISION OF**



**ASARCO**  
AMERICAN SMELTING AND REFINING COMPANY

# Information For Your Catalog Files

## BEARINGS

Stock List #56 describes Oilite oil cushion bronze bearings. The 32-page booklet includes diameters, lengths, and machining characteristics.

**Beemer Engineering Company**

## COPPER ALLOYS

Write No. 1 on Inquiry Card—Page 32

A 14-page booklet containing a detailed listing of the properties, forms, and composition of wrought copper and copper-base alloys. Has reference sheets listing the nominal composition, available forms, and physical properties. Ratings for the corrosion resistance, as well as the hot working and annealing range, are also featured.

**Olin Mathieson Chemical Corporation**

Write No. 2 on Inquiry Card—Page 32

## DUCTILE IRONS

A 28-page booklet describing the engineering properties of Ni-Resist ductile irons. Tables and graphs explain mechanical and physical properties, erosion and corrosion resistance, and high temperature strength. A special section points out industrial applications.

**The International Nickel Co., Inc.**

Write No. 3 on Inquiry Card—Page 32

## FITTINGS AND FLANGES

Data folder FDC-254 catalogs—by size, dimensional, and physical data—welding fittings and forged steel flanges for one inch nominal pipe sizes. Contains dimensions, descriptions, and weights.

**The Babcock & Wilcox Company**

Write No. 4 on Inquiry Card—Page 32

## GAS REGULATORS

Form ADC 705F is a 36-page catalog covering a line of cylinder, manifold, and station pressure regulators. The illustrated booklet contains flow and pressure specifications, as well as inlet and outlet connection dimensions for each regulator. Adapters, station valves, flowmeters, hose connections, and pressure gauges are described.

**Air Reduction Co., Inc.**

Write No. 5 on Inquiry Card—Page 32

## HOSE ASSEMBLIES

Bulletin 4501 announces a line of hose assemblies with permanently attached ends for industrial applications. Describes the various types of Krimp-lok assemblies to meet a wide range of industrial requirements.

**Parker-Hannifin Corp.**

Write No. 6 on Inquiry Card—Page 32

## MAGNETIC STARTERS

Publication EN-150 is a 15-page booklet about the Three-Star line of A-C magnetic starters. Includes starters in NEMA sizes 0 through 4 for both reversing and non-reversing single phase and squirrel cage motors. Describes the ratings and dimensions of the individual starters.

**Cutler-Hammer Inc.**

Write No. 7 on Inquiry Card—Page 32

## MOUNTINGS

Bulletin 712 describes the vibration, isolation, and heavy shock absorption features of center bonded mountings. Includes data on patented design features, installation, performance, and specifications of both compression-type and shear-type mountings.

**Lord Manufacturing Company**

Write No. 8 on Inquiry Card—Page 32

## PHENOLIC MOLDING

Pamphlet D203 describes Durez 16771 natural—a high impact phenolic molding compound reinforced with Fiberglas. The six-page brochure advises appropriate molding equipment and mold design, and lists cure time recommended for optimum results.

**Hooker Chemical Corporation**

Write No. 9 on Inquiry Card—Page 32

## ROOF VENTILATORS

Bulletin 4004 describes construction features, capacities, quietness levels, and accessories of centrifugal type roof ventilators. The eight-page two-color brochure lists design features of 13 basic ventilator sizes, including 111 motor and belt-drive combinations for various building environments.

**American-Standard**

Write No. 10 on Inquiry Card—Page 32

## SHELVING

An eight-page bulletin describing quick-change bracket-type Erectomatic shelving. Illustrated with sequence photos, showing step-by-step shelf-changing procedure requiring no tools. Has specification information about the various types and models—open, closed, bin units, ledge units, cabinets, or counter.

**Standard Press Steel Co.**

Write No. 11 on Inquiry Card—Page 32

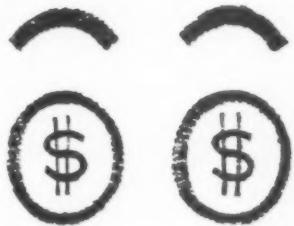
## SWITCHGEAR

Bulletin 18B634C describes construction and design features of 4.16-kv horizontal drawout metal-clad switchgear. The catalog describes the switchgear components, including Ruptair circuit breakers and Pyro-Shield insulation.

**Allis-Chalmers Manufacturing Co.**

Write No. 12 on Inquiry Card—Page 32

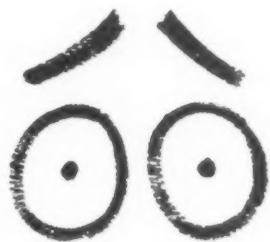
PURCHASING



**February**—Bought lower grade ammonia at a bargain price . . .



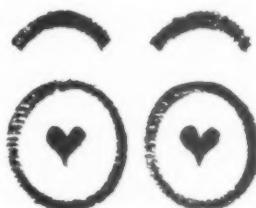
**Later**—Discoloration of finished parts apparent, rejects more frequent, pickling necessary . . .



**Still later**—Oil! Pressure regulators clogged, catalyst poisoned, incomplete dissociation . . .



**Too late**—Shut down metal treating line for repairs . . .



**Be trouble-free—use only  
Armour's 99.98% pure ammonia  
in your metal treating operation!**

Such consistent purity, dependable delivery service from 163 stock points and 8 bulk stations—and a technical service that's second to none—make Armour your one best source for trouble-free ammonia. For further information and a copy of the informative Dissociated Ammonia booklet, write us on your company letterhead.



**ARMOUR AMMONIA DIVISION**

1353 West 31st Street • Chicago 9, Illinois

**REDUCE MANUFACTURING COSTS**

**IMPROVE PRODUCT PERFORMANCE**

**SOLVE DESIGN PROBLEMS**

with

# **WORLD BESTOS**

## **MOLDED ORGANIC PARTS**

**REDUCE COSTS**

High-density molded organic part replaces brass pressure plate in clutch assembly



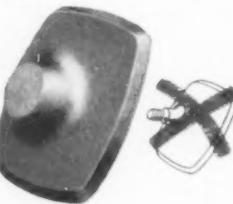
**IMPROVE PERFORMANCE**

Semi-flexible molded organic parts replace leather washers in deep well pump



**SOLVE DESIGN PROBLEMS**

Resilient molded organic part replaces combination metal-hard rubber vibration damper



- A fresh approach to design problems with WORLD BESTOS Molded Organic Parts can pay off in improved product performance and reduced manufacturing costs. Applications range from industrial and automotive equipment to home appliances. Molded Organic Parts can be built to meet virtually any shape, size or performance specifications. Parts can be supplied for testing and evaluation or on a production basis. For complete details, send samples or blueprints to WORLD BESTOS, New Castle, Indiana. Phone Jackson 9-4790.

**WORLD BESTOS**

NEW CASTLE  
INDIANA

DIVISION OF THE  
**Firestone**  
TIRE AND RUBBER CO.

For More Information Write No. 189 on Inquiry Card—Page 32

## Catalog Files

### **ROLLER MILLS**

A four-page illustrated technical bulletin describing one, two, and three pair roller mills. Bulletin 153-A explains the function and operation of roller mills, along with construction and design details. Has a complete table of specifications, including length, width, height, roll speeds, horsepower range, and shipping weights.

**Sprout, Waldron & Company, Inc.**

Write No. 13 on Inquiry Card—Page 32

### **SWITCHES**

Catalog 83c covers a line of industrial enclosed switches. It gives complete details about nine housing groups of metal-enclosed switches for industrial use. The 20-page bulletin lists switches with a variety of actuator types for general purpose requirements.

**Micro Switch**

Write No. 14 on Inquiry Card—Page 32

### **TEMPERATURE CONTROLS**

A four-page folder describing pneumatic temperature controls. Two new models are introduced: model RVA, recording pneumatic temperature control, and model IVA, indicating pneumatic temperature control. Discusses the interchangeable elements on the controls.

**Partlow Corporation**

Write No. 15 on Inquiry Card—Page 32

### **VALVES**

Catalog 59SS lists a complete line of stainless steel gate, globe, and swing check valves. It gives details about valve patterns in alloys that satisfy the requirements of most corrosive services. Also includes a 10-page section presenting the degree of resistance of the alloys to many corrosive media under varying conditions.

**Jenkins Bros.**

Write No. 16 on Inquiry Card—Page 32

### **WELD PIPE**

Technical information and specifications for continuous weld pipe are contained in this eight-page four-color booklet. It has color photographs portraying the manufacturing process, along with a schematic drawing.

**Jones & Laughlin Steel Corporation**

Write No. 17 on Inquiry Card—Page 32

**PURCHASING**

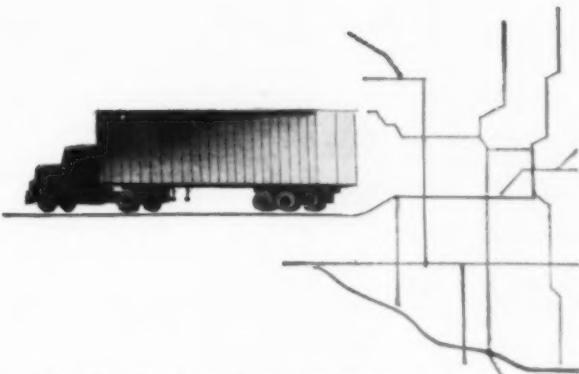
# NOW! Direct to Denver

**With the acquisition of  
Prucka Transportation,  
Interstate System offers  
fast, single-line service,  
Atlantic Seaboard to the  
Rocky Mountains.**

America's fastest growing motor freight system now offers fast, direct single-line service between key eastern, mid-western and Rocky Mountain markets with new comprehensive coverage in Nebraska and Colorado. We have the facilities and the equipment to render exceptional service on both truckload and LTL shipments. Our Chicago terminal, featuring timed, scheduled departures for points west every four hours, insures swift, dependable service to large and small cities on our western route.

**COAST-TO-COAST SERVICE!** Shippers using Interstate System can be guaranteed thru rates to or from West Coast points named in Rocky Mountain tariffs. Denver is the interchange point; our

*64 Terminals in 26 States*



West Coast carrier is Garrett Freightlines, Inc., serving 11 states west of the Continental Divide.

**DIRECT TRUCK SERVICE TO PUERTO RICO!**

New trailership service to and from Puerto Rico from any point on the Interstate System, with facilities to handle truckload, LTL, open top as well as traffic needing heat or refrigeration. For complete information, including rates and schedules, call your local Interstate representative. He's listed in the Yellow Pages.

**INTERSTATE  
MOTOR FREIGHT  
SYSTEM**

Grand Rapids  
Michigan



For More Information Write No. 190 on Inquiry Card—Page 32

## Letters To The Editor

### LUBRIPLATE No. 630-2 Multi-Purpose Grease

ALSO  
PACKED IN

### CONVENIENT GREASE GUN CARTRIDGES



Lubriplate No. 630-2 is a high temperature, extreme pressure, water-repellent, grease type lubricant. Ideal for the general lubrication of Industrial, Automotive, Construction, Farm and Marine Equipment. Lubriplate Grease Gun Cartridges provide an easy, quick, economical means of application. Prevent the waste and mess of hand filling. Packed 10 Cartridges in a handy carrying carton.

### REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Write for free "LUBRIPLATE DATA BOOK" . . . a valuable treatise on lubrication. LUBRIPLATE DIVISION, Fiske Brothers Refining Company, Newark 5, N. J. or Toledo 5, Ohio.



For More Information Write No. 191  
on Inquiry Card—Page 32

### QUANTITY DISCOUNTS

I read the good article, "When Does It Pay to Take a Quantity Discount?" by Spencer B. Smith, in your November 10 issue of PURCHASING Magazine.

In this article, and also in other articles on the subject, I find what I consider to be high figures on the unit ordering cost. For example, in the November 10 article ordering cost is noted as \$10. I presume these high costs are commonly obtained by dividing total annual purchasing department costs by the number of orders.

I do not believe this applies to the cost of added orders. For example, a purchasing department placing 1000 orders per year at a cost of \$10,000 would not find an added cost of \$10 if orders were increased to 1001 for a year. The obvious reason being that the only added cost would be for the paper and stamps involved. Perhaps a phone call might be involved, but certainly this would not typically make the unit added cost bear any resemblance to the average annual cost of an order.

F. J. Kirkish  
Purchasing Department  
Barium Products Ltd.  
Modesto, Calif.

### CONFIDENCE

For sometime now I have been impressed with your "Business Confidence Index" which reflects the combined opinion of the nation's purchasing agents.

I would very much appreciate, therefore, receiving from you the statistical method that is used in arriving at this one index.

J. F. Stephens  
Purchasing Superintendent  
United States Rubber Company  
Joliet, Illinois

- This index, which was first used a year ago, has been extremely popular. It is derived from a sampling of representative purchasing agents' opinions throughout the country. A monthly sampling of 1000 P.A.'s is conducted entirely by the Research Depart-

ment of PURCHASING Magazine. In 1958 we determined the index figure by first assigning weights to the five categories of opinions (much better, slightly better, etc.). We then multiplied the number of opinions in each category by the weighted values and divided the total figure by the number of replies.

However, starting with the Jan. 5 issue we are using the year 1958 as a statistical base of 100 and will determine the index in future months in relation to the 1958 average.

### AND THEN THERE WERE NONE

In your December, 1957 issue you published on page 102 an illustration of the District of Columbia's procurement manual.

Since that time we have been literally deluged with requests for copies. The requests are still coming in a year later and our supply is depleted.

R. G. Wessells  
Procurement Officer  
Government of the  
District of Columbia  
Washington, D. C.

### UNION SHOP FOR BUYERS

In a recent issue of PURCHASING Magazine (Dec. 8, 1958) I read the editorial on "Union Shop for Buyers." I would be very much interested in receiving more specific information as to those areas, or companies where attempts have been made to organize procurement personnel. It's been my experience that much can be learned from the mistakes of others.

Richard B. Foster  
Director of Procurement  
Minneapolis-Honeywell  
Regulator Co.  
Minneapolis, Minn.

- The information for this editorial came from a discussion with a prominent New York purchasing agent. This executive agreed to speak about attempts to unionize buyers at his plant and others only after he had definite assur-



Amusement park operators\* know that their rides must be exciting to be successful. But with the lives of riders and onlookers at stake, operators rely on *quality* wire rope to ensure . . .

## a safe ride

Safety comes first, wherever wire rope is used. You may save a few pennies on the purchase of a "bargain" rope. But it will cost you *more* than you bargained for, if it results in injured personnel and wrecked equipment. Make sure you get *quality* wire rope—buy Wickwire Rope.

*\*Picture shows the Rocket Ride at Palisades Amusement Park, Fort Lee, N. J. Wickwire Rope provides the only support for each of these planes.*



LOOK FOR THE  
YELLOW TRIANGLE

### PRODUCT OF WICKWIRE SPENCER STEEL DIVISION THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Denver • El Paso • Farmington (N. M.) • Fort Worth • Houston • Kansas City • Lincoln • Odessa (Tex.) • Oklahoma City • Phoenix • Pueblo • Salt Lake City • Tulsa • Wichita • PACIFIC COAST DIVISION—Los Angeles • Oakland • Portland • San Francisco • San Leandro • Seattle • Spokane • WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emileton (Pa.) • New Orleans • New York • Philadelphia 6347

For More Information Write No. 192 on Inquiry Card—Page 32



Model "SFD" Flange  
Mounted Reducer

## NEW DOUBLE REDUCTION HOLLOW SHAFT worm gear speed reducers!

Model "STD" Torque Arm Reducer

- **THE COMPLETE** range of reduction ratios —  $66\frac{2}{3}:1$  to  $4466:1$ .
- **THE COMPLETE** output selection — .04 to 2.55 HP. Torques from 1473 to 7678 in. lbs.
- **SHAFT-MOUNTED** ease of installation. Real space economy. No foundations required.
- **THE SAME RUGGED DURABILITY** and smooth, efficient operation for which Winsmith worm gear speed reducers have long been famous.
- **THIS COMPLETE** selection in choice of several assemblies.



WRITE TODAY for details on this new line which combines all the advantages of hollow shaft installation with worm gear, double reduction ratios engineered and precision-manufactured for you by Winsmith.

**WINSMITH**  
SPEED REDUCERS

**WINSMITH, INC.**

18 Sixth Street, Springville, (Erie County), N. Y.

For More Information Write No. 193 on Inquiry Card—Page 32

### Letters

ance that his name or company would not be revealed. We can say, however, that this man is well-known and is a man of the highest integrity.

### BIG AND SMALL BUYERS

I am very interested in the Pulse of Business pages of your magazine. And I would like to say that we find your journal most stimulating.

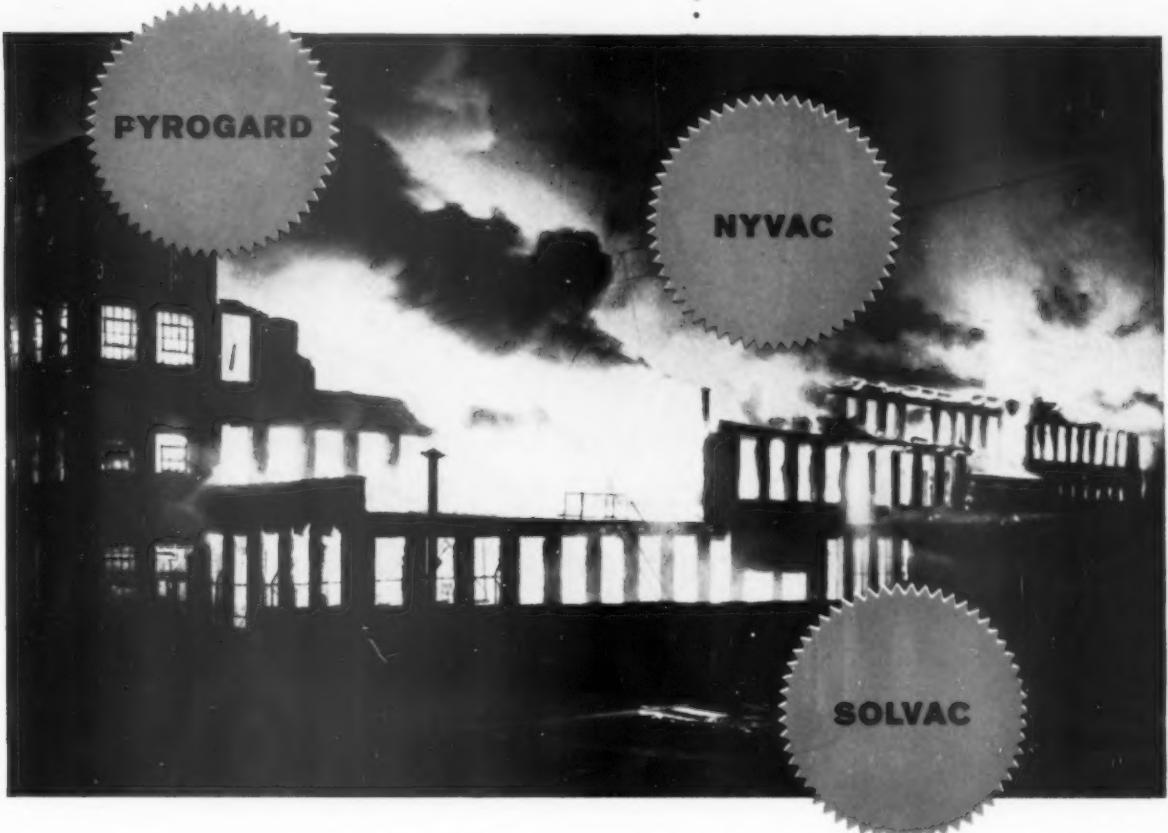
However, speaking from memory, I believe you showed in it a short time ago some statistics giving the number of buyers in the firms subscribing to the journal, and we were surprised at the small number of firms employing a dozen or over buyers. Can you reasonably say that the P.A.'s reports in the Pulse of Business articles do come from the large firms as well as the small ones?

N. Yarnold  
Buying Department  
Pirelli-General Cable  
Works Ltd.  
Southampton, England

● Whenever PURCHASING Magazine samples the readers opinions it is done on a statistically accurate basis. In selecting a list of 100, 1000 or 5000 names the entire circulation is used and every "nth" name is taken. In this way we are assured of complete industry, company size and geographic diversification. For instance, if Ohio represents "X" % of the circulation, then the number of names from Ohio in the sample will represent the same percentage of the total sample. The same principle applies to industry, and size of company. Since our circulation corresponds almost exactly with the distribution of American industry it follows that the sample does also. Therefore, it can safely be said that there are, proportionally, the same number of big and small buyers in the sample as there are in our circulation.

# New Low-Cost Fire Protection

Protect your personnel, property, production—with a Mobil Fire-Resistant fluid that exactly meets your needs!



If any of your hydraulic systems operate near a source of ignition you're in need of a fire-resistant fluid. There are three types to choose from: Straight Synthetic, Water Base Synthetics and Emulsions of Water and Oil. With the introduction of Pyrogard, Nyvac and Solvac . . . now Mobil can supply you with *all three types*.

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*For detailed brochure on Mobil Fire-Resistant Hydraulic Fluids, write on company letterhead to Socony Mobil Oil Company, Inc., Room 2060D, 150 E. 42nd Street, New York 17, N.Y.*



## CORRECT LUBRICATION

*Another reason you're Miles Ahead with Mobil*

SOCONY MOBIL OIL COMPANY, INC., and Affiliates MAGNOLIA PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION, MOBIL OVERSEAS OIL COMPANY, INC.

For More Information Write No. 194 on Inquiry Card—Page 32

FEBRUARY 16, 1959

55



*Get the Bostitch  
Economy Man in.  
He'll know what to do!*

What's your company's shipping problem? Hard-to-pack contents? Fragile contents? High container costs? Fastening failures? Failure due to moisture?

**What?**

A Bostitch Economy Man is a container fastening expert. He helps solve shipping problems for companies of all kinds.

After he's checked your shipping room, he's likely to suggest savings in time, labor and materials.

These savings are frequently substantial. They're available to you—through the selection of the most appropriate Bostitch staplers and staples for your shipping room. And the Bostitch Economy Man will work that out.

Why not have the Economy Man called in to check your container fastening methods? There are over 300 of them working out of 123 U. S. and Canadian cities. He's listed under "Bostitch" in the phone book.

***Fasten it better and faster with***



722 BRIGGS DRIVE, EAST GREENWICH, RHODE ISLAND

For More Information Write No. 195 on Inquiry Card—Page 32



## A "Soft Goods" Firm Learned Some Hard Facts on Wrapping Paper

The Stearns and Foster Co. of Cincinnati is a long time user of Crossett Leatherneck Kraft. They buy kraft rolls for wrapping mattresses and kraft sheets for cotton wadding and batting.

Their personal experience in tight paper markets is reason enough for their loyalty to Crossett. From other sources, lighter weights would become unavailable and some sources dried up entirely.

They say that Crossett has always continued to ship pre-specified quantities of all weights at fair prices under every market condition.

Crossett salesmen sell this concept on every call. It's a comfortable feeling to have a fine customer like S. and F. read back your sales talk with no prompting.

Ask your dealer listed at the right for the full story of substantial savings to be realized with weight controlled wrapping papers from Crossett.

## CROSSETT PAPER MILLS

*A Division of The Crossett Company, Crossett, Arkansas*



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## Purchasing People In The News

**Charles J. Seelig** has been appointed assistant purchasing agent for Consolidated Diesel Electric Corporation's Aircraft Equipment and Power Equipment divisions at Stamford, Conn. Before joining the company Mr. Seelig had been purchasing agent for the G. M. Ketcham Manufacturing Corporation and for the H. A. Sward company.

Lehigh Portland Cement Company, Allentown, Pa., has named **Robert E. Jones** director of purchases. He succeeds **R. O. Erdman** who has retired. Mr. Jones joined the purchasing department staff as procurement engineer in 1956. Before that he had been plant manager for the company at Iola.

**Robert N. Whitney**, who for the past three years has served as assistant purchasing agent at



**R. N. Whitney**

Miniature Precision Bearings, Inc., Keene, N. Hamp., has been appointed purchasing agent. He succeeds **Leo Vogel** who moved up to the newly-created position of staff assistant of the company. Mr. Whitney joined MPB, Inc., in 1955 as a buyer. Previous to that time he was office manager for the Keene operations of the New England Box Company. He has also been with Pittsburgh Plate Glass Company and the M. S. Perkins Machine Company, both of Keene.

**Charles E. Kaufman** has been appointed purchasing agent for Hagan Chemicals & Controls, Inc., Pittsburgh, Pa., and its divi-



**C. E. Kaufman**

sions, Calgon Company and Hall Laboratories. He succeeds **Clifford R. Texter**, who has retired. Since joining Hagan in 1936, Mr. Kaufman has served as director of research for the Hall Laboratories Division. Later, he was manager of chemical product development for Hagan. He became assistant purchasing agent in 1958. He is a member of the National Association of Purchasing Agents, Purchasing Agents Association of Pittsburgh, American Chemical Society, Engineering Society of Western Pennsylvania and American Association for the Advancement of Science.

**Thomas G. Lewis** has been appointed purchasing agent for the Youngstown Sheet and Tube Company with headquarters in the general offices, Boardman, Ohio. Also **William B. Seeman** was advanced to the position of group leader, buyer for the company.

Mr. Lewis joined the company as an office boy in the purchasing department in 1925. He worked as a piercing mill operator, invoice clerk, chief invoice clerk, chief purchasing department clerk and buyer. He became assistant to the director of purchases in 1955. In 1956 he became assistant purchasing agent,

the position he held at the time of his most recent promotion. He is a member of the Purchasing Agents Association.

Mr. Seeman joined the Youngstown Sheet and Tube Company in 1938 as a clerk in the purchasing department, and became a buyer in 1952.

Penick & Ford, Ltd., Cedar Rapids, Iowa, has announced the appointment of **C. H. Bode** as purchasing agent. He succeeds **R. W. Black** who has been with Penick & Ford for 45 years and has now retired. Mr. Bode has been assistant to Mr. Black.

**Emmett J. Heup** has been appointed manager of purchases for Bucyrus-Erie Co., South Milwaukee, Wis. Mr. Heup succeeds **John R. Warner**, who recently was named vice president in charge of purchasing. Mr. Heup



**Emmett J. Heup**

had been purchasing agent since joining the company in 1952. Prior to that, he had been employed in Milwaukee by the Allis-Chalmers Mfg. Co., Inc., and the Veterans Administration, both in personnel positions, and by General Electric Supply Co., in sales.

**SEE PAGE 196 FOR MORE  
PURCHASING PEOPLE IN  
THE NEWS**

# POWER-UP! calls for modern maintenance

SHOP REPAIR...

RENEWAL PARTS...

FIELD SERVICE...



**EFFICIENT**—Modern repair craftsmanship plus modern facilities produce long-lasting electrical repairs to efficiently and economically cut your maintenance costs.

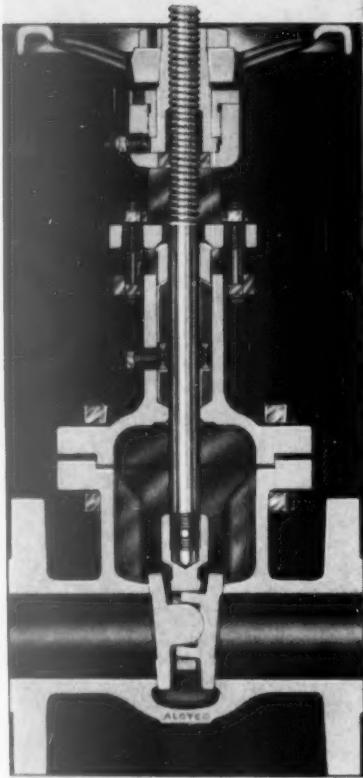
**ECONOMICAL**—You are assured modern materials properly engineered to fit your application.

**GUARANTEED**—All modernized and rebuilt electrical equipment carries the same guarantee as new equipment. Fast service from a nation-wide network of plants provides prompt delivery.

J-95200

**YOU CAN BE SURE...IF IT'S** **Westinghouse**

## FOR HIGH-PRESSURE CORROSIVE SERVICE:



### 300 lb. Aloyco Stainless Steel Gate Valves

Figure 2117 double disc. (above) Available in sizes  $\frac{1}{2}$ " to 8".

Figure 2217 for solid wedge. Sizes  $\frac{1}{2}$ " to 12".

In addition — screwed, and socket weld ends. Sizes  $\frac{1}{2}$ " to 2".

Other 300 lb. designs including globes,

swing and lift checks; jacketed and tank valves. 600 lb. designs also available.

**Materials**  
Types 304 and 304L  
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Aloyco 20  
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For more information on Aloyco valves for your specific corrosive service, write for Bulletin #7 to Alloy Steel Products Company, 1301 West Elizabeth Ave., Linden, New Jersey... the one manufacturer specializing in Stainless Steel Valves exclusively.



**ALLOY STEEL PRODUCTS COMPANY**  
Linden, New Jersey

For More Information Write No. 198  
on Inquiry Card—Page 32

## FOB—"filosofy of buying"

**B**RAND-NAME buying (strictly on the basis of name) is generally frowned on by American P.A.'s. They look first for performance at competitive prices. If a brand-name product stacks up well on these two counts it's got as good a chance as any other product.

Things have been different in Communist Poland. There everything is made by the government. There is no competition. There's been no incentive to put a little extra value into an item to woo customers.

But a vicious cult of individuality is taking hold in Warsaw's world of commerce. To keep their stubborn, independent-minded subjects from revolt, the Communist masters have had to provide them with more consumer goods. And to get factories to boost the quality of their output above the shoddy level, they've been handing out trademarks as badges of distinction. The public has caught on and is demanding more trade-marks on what they buy.

Who knows where all this will lead? One leading newspaper has already made a dangerous suggestion. "It has become a rule in our

country that we consider a man who fulfills his obligations to be a hero," says Zycie Warszawy. "Perhaps the thing should be done the other way around and prices should be lowered for goods of lower quality. Then the factories will have incentives and the consumers will be glad too."

Look out there, Zycie! You're drifting off that road to socialism on to the primrose path of capitalism. Lower prices for lower quality? What a betrayal of the working class!

**W**HEELS have already begun to turn in the elaborate machinery for the National Association of Purchasing Agents' annual convention in June. Perhaps again this year we'll be hearing some sort of catchy slogan designed to attract P.A.'s to the meeting. The thought brings to mind a mild brouhaha provoked by the droll chap who was doing this column in 1932.

The pre-convention slogan that year was, "Buyers Alert—On to Detroit." How mused the Filosopher of that day, would the slogan be pronounced in certain parts of metropolitan New York? Buyers



"And appropriately enough, Hentie, it's self-winding."

Aloit—On to Detroit? Or, Buyers Alert—on to Detrert? Or, maybe, Buyers Aloit—On to Detrert?

Piqued, a couple of members from the maligned area talked vaguely of canceling their subscriptions. But they were eventually satisfied that no malice was intended.

In the same spirit, we offer a few suggestions, in some local dialects, for the 1959 convention:

Put a Bite Behind Your Bark. Come to New York; Listen, Don't Talk, Come to New Yawk; You'll Learn a Lat in Manhattan.

RECENTLY we advised the purchasing executive of a large company on steps he could take to curb back-door selling. A week later we came across the following in the welcome booklet of Veeder-Root, Inc., Hartford, Conn.:

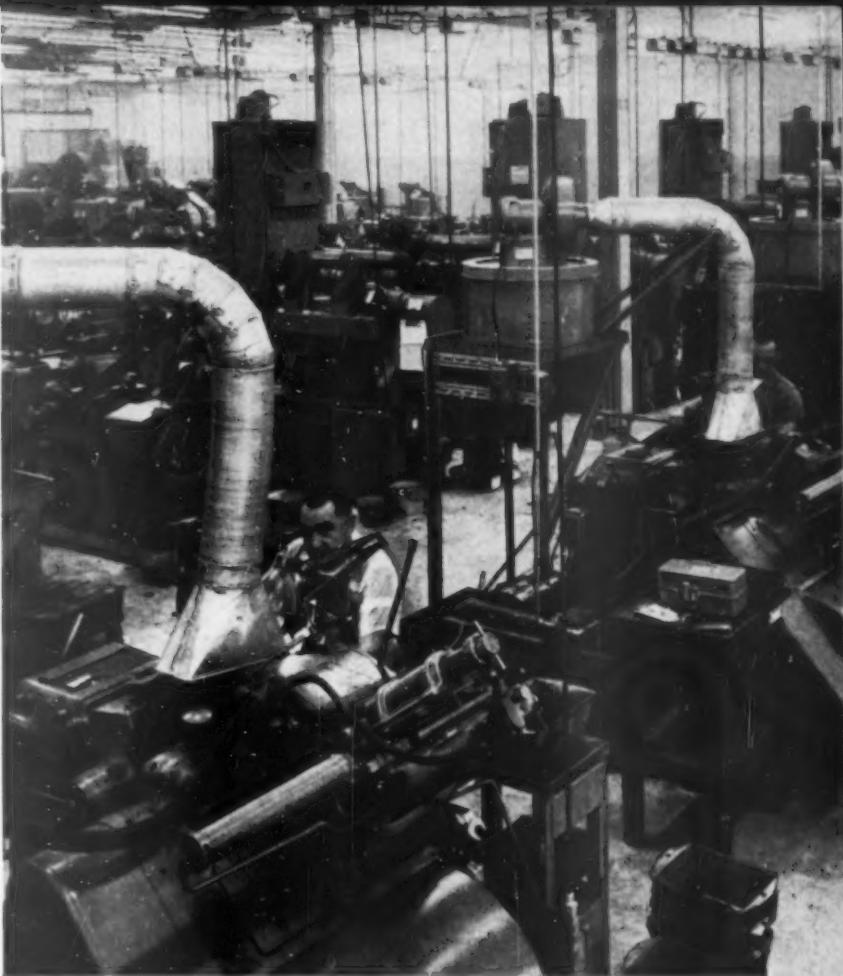
"If you represent a product which you think may be of interest to us, you will get the best results and help our organization to function smoothly if you call first at the Purchasing Department. There you should talk with our Purchasing Agent, Ray Bond. He and the others in Purchasing know the needs of the departments, and if they feel you should talk with someone else, they will see that the proper person is made available. (Signed) Harvey L. Spaunburg, President."

What could be more to the point—or more authoritative? That's the best answer on what to do about back-door selling. Get your company president to put in writing who does the buying. Then see that it's read and understood by all concerned.

EVEN our best-selling novelists realize that back-door selling just isn't accepted any more. Witness this passage from John O'Hara's "From the Terrace". An engineer says to a young salesman:

"We had some dealings with your father's mill a long time ago. I met him only the one time. From then on everything went through our purchasing agent."

For More Information Write No. 199  
on Inquiry Card—Page 32→



## NEW This is the old grind at ALLEN

A quarter of a million square feet of space in the great new Allen plant is devoted to precision fasteners—and much of it houses batteries of the latest, high-speed automatic centerless grinding equipment. Here you see a close-up of the grinding section set up to produce dowel pins at the rate of one a second per machine.

Allen's vast new facilities assure constant standards of uniformity, accuracy, strength and fit, many of which are duplicated nowhere else. Now there's more reason than ever to make Allen *your* Buy-Word for socket screws, keys, plug pins and dowel pins.

Speaking of dowel pins—specify Allen for great strength where you need it most. Made of Allenoy steel, they're surface hardened to 62-64 Rockwell C. Core hardness 47-53. Case depth .010" to .020". Shear strength from 160,000 to 180,000 psi. Precision-ground to  $\pm .0001"$ , with a mirror finish of 6 RMS max.

In stock at your Allen Distributor . . . in dia. from  $\frac{1}{8}"$  thru 1" . . . lengths from  $\frac{3}{8}"$  thru 6". Also in two standard oversizes—.0002" for press fit, .001" for repairs. For more details, ask your local Distributor, or write directly to the Allen Manufacturing Company, Hartford 1, Conn.





**ULTRA-MODERN TECHNOLOGY PLUS  
OLD-FASHIONED DEVOTION TO QUALITY  
IS THE SECRET OF HYATT SUPERIORITY**

Other producers may boast equally elaborate electronic controls these days. But there is still no substitute for the tradition of craftsmanship which has made HYATT the most respected name in cylindrical bearings since 1892. *For maximum performance per bearing dollar, insist on . . .*

**HYATT HY-ROLL BEARINGS**  
FOR MODERN INDUSTRY  
HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY

Available through United Motors System and its Independent Bearing Distributors

**NO BEARINGS** carry radial loads like cylindrical bearings . . .  
and **NOBODY** builds them like **HYATT**

**LABOR and PARTS SAVINGS**

**TURN PROBLEMS INTO**

**PROFIT\$**

with the

# **Saginaw Screw**

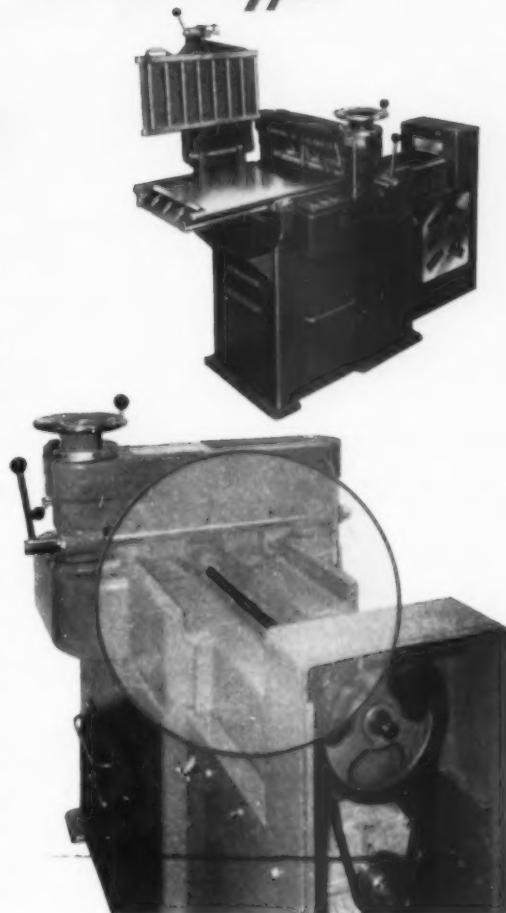
"WE USE ONE COMPACT SAGINAW SCREW IN PLACE OF THREE COMPLEX AND COSTLY PARTS NEEDED BEFORE on our printing plate PlateShaver. The Saginaw Ball Bearing Screw has cut our manufacturing time and material costs considerably. And our product has more Sales Appeal because our PlateShaver now has considerably less mechanical parts and thus less potential mechanical trouble and maintenance," says Mr. Lee Hammond, President of Hammond Machinery Builders, Kalamazoo, Michigan.

You can turn *your* product problems into profits, too, when you switch from inefficient actuation methods to the virtually frictionless Saginaw b/b Screw for greater Sales Appeal!

The Saginaw Screw converts *rotary* motion into *linear* motion with over 90% efficiency. No wonder progressive manufacturers are saving so much time, power, weight, space and cost by simply switching from inefficient acme screws or costly chain drives and hydraulics to these versatile Saginaw Screws.

They have been produced from 1½ inches long for delicate electronic controls to 39½ feet long for huge machinery.

Perhaps the Saginaw Screw can give *your* products that vital new Sales Appeal you're looking for right now. To discover how, simply write or telephone Saginaw Steering Gear Division, General Motors Corporation, Saginaw, Michigan—*world's largest producers of b/b screws and splines*.



*Give your products  
NEW SALES APPEAL...  
switch to the*

**Saginaw**  
**Ball** **Bearing** **Screw**

WORLD'S MOST EFFICIENT ACTUATION DEVICE

For More Information Write No. 201 on Inquiry Card—Page 32  
63

← For More Information Write No. 200 on Inquiry Card—Page 32  
FEBRUARY 16, 1959

# New high capacity V-belt revolutionizes drive design



## Makes drives far more compact... cuts cost as much as 20%

Here is a major advance in the field of power transmission — the fully proved Gates Super HC V-Belt, developed in the world's largest belt-testing laboratories at The Gates Rubber Company.

The Gates Super HC V-Belt makes possible the lowest-cost, lightest-weight, most compact multiple V-belt drive that can be put on any machine! Sheave diameters can be reduced up to 50%, sheave widths 30% to 50%, center distances 20% and more.

*On new drives, the cost of a Gates Super HC V-Belt Drive is as much as 20% less than present V-belt drives of the same horsepower capacity.*

### Learn more about the cost-saving Super HC Drive

For detailed information on the Super HC Drive, contact your nearby Gates distributor or Gates Office for new booklet, "The Modern Way to Design Multiple V-Belt Drives."

For utmost space, weight and dollar savings in new drives or drive replacements, specify Gates Super HC V-Belts and Sheaves. Stocks immediately available in principal industrial centers.

### How savings multiply with Gates Super HC V-Belt Drive

Cost of a new Gates Super HC V-Belt Drive is as much as 20% less than cost of a drive of comparable horsepower using present V-belts. In addition to the lower cost of the drive itself, further economies are realized on housings and bases — economies in materials, production time, shipping costs.

**Shown below are space savings of a typical installation...**

	DriveR Sheave Diam.	DriveN Sheave Diam.	Center Distance	No. of belts
Present Drive	7.4"	20.0"	42.9"	4
Super HC Drive	5.3"	14.0"	30.0"	3

**The Gates Rubber Company, Denver, Colorado • Gates Rubber of Canada Ltd., Brantford, Ontario**



World's Largest Maker of V-Belts



## Gates Super HC V-Belt Drives

## **Highlights of This Issue**

## ✓ Materials Management III

In the past couple of issues, we've been talking about some of the theoretical aspects of materials management. We've talked of the historical development of the idea and how it has evolved as a phase of modern management. We continue in this issue with the same series, dealing this time with the logic of making management of materials the purchasing agent's responsibility. But something new has been added. As a practical demonstration of what we've been talking about we offer two examples of materials management in action. Both stories have a lot in them for P.A.'s who may be a little dubious about the ability of a small or medium-sized department to handle the materials management job (or even suggest the idea to top company executives). Check all three articles and see if it isn't time for you to qualify as a manager of materials. (See p. 69.)

## ✓ Tell Them—But Show Them, Too

Communications is a kind of big word to describe the flow of information between the company president and his 3-man buying group. But the principle involved is the same whether you're trying to get top management's ear in U.S. Steel or a local warehouse. You must not only know **how** to communicate—you have to have something worthwhile to report. A short article tells how one small-company P.A. succeeds on both counts. (See p. 88.)

## ✓ Another Question of Ethics

Tired of all this talk about the propriety of accepting gifts or entertainment from suppliers? Then give your conscience a refreshing look at another aspect of purchasing ethics. Take the question of just how obligated you are to the vendor who solves a special problem for you—only to watch you give the order to a nimble-witted competitor who grabs the idea and offers a lower price. Sound familiar—uncomfortably familiar? This issue carries a frank discussion of the problem followed up with some practical ideas on how to solve it. (See p. 82.)

### ✓ Buying By The Book

What a tidy little world this would be if all the rules we've dreamed up for ourselves worked. All a buyer would need would be a purchasing textbook, copies of a couple of convention speeches, a brace of inventory formulas, and a plastic slide rule for evaluating vendors. Of course life and purchasing just don't work out that way. The really successful man in any field is the one who knows when and how often to break the rules. Stuart Heinritz offers some thoughtful and provocative comments on **not** buying by the book. (See p. 77.)

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on Inquiry Card—Page 32  
FEBRUARY 16, 1959

Entered Inquiry Case No. 709  
FEBRUARY 16, 1959

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# RIVETS and NAILS to "AN" SPECIFICATIONS

Air Force Approved Facilities  
Immediate Delivery, Many Sizes  
Economically Cold Headed in  
**STEEL • STAINLESS** (including AMS 7228)  
**MONEL • INCONEL • COPPER**

**JOHN Hassall** INC.  
P. O. Box 2268 Westbury,  
Long Island, New York

For More Information Write No. 203  
on Inquiry Card—Page 32

# GOOD TIME TO TRIM FAT

from needless caustic soda costs!



Columbia-Southern's experience in manufacturing and selling quality caustic soda convinces us that many caustic users can effect appreciable savings on their current costs. Isn't this the ideal time to see if this applies to your caustic consumption?

Let's take the *form* of caustic you are buying and handling. Are you quite sure that new or projected changes in your products or processing won't be benefited by purchasing liquid, rather than anhydrous? Or vice versa? Or 73% liquid, rather than 50%? Do you have reliable figures on diluting and storing the stronger concentration? How about the facts on completely up-to date unloading techniques and equipment?

How about the uniform *quality* of the caustic you are receiving? Here again, Columbia-Southern can advise you

with the authority of recognized experience. As a matter of record, we have led in developing improved tank car linings, heating, insulation, and safety features . . . patented unloading and dilution processes . . . economical waterways delivery.

Our well-grounded Technical Service engineers have helped customers save thousands of dollars in buying and using caustic soda. Isn't it good business, especially *now*, to see what savings they might work out for you? You may request their services either through our Pittsburgh address, or any of the fourteen Columbia-Southern District Sales Offices.

The Columbia-Southern Chemical Corporation, One Gateway Center, Pittsburgh 22, Pennsylvania. Offices in principal cities. In Canada: Standard Chemical Limited.

**COLUMBIA-SOUTHERN CHEMICAL CORPORATION** A Subsidiary of Pittsburgh Plate Glass Company

For More Information Write No. 204 on Inquiry Card—Page 32

## Purchasing and Our Security

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UPON the speed and efficiency of procurement processes may well depend the peace and security of the free world."

Coming from someone in purchasing that statement might be considered bombastic and slightly ridiculous. But it doesn't and it isn't. It was made by Senator Leverett Saltonstall (R., Mass.), a member of the Armed Services Committee as he introduced Bill S. 4294. The bill calls for major reforms in the way our Armed Forces must now buy according to law.

Buyers for the military operate in a jungle of regulations that makes the average industrial purchasing manual look like a second-grade speller. Senator Saltonstall's bill attempts to cut through the red tape and reduce the delay and unnecessary expense that are hampering our defense effort.

In general, S. 4294 would give more flexibility to military buyers. It permits greater use of competitive negotiation (comparable to industry's use of requests for quotation) as an unconditional alternative to formal advertising. It encourages use of performance specifications instead of minutely detailed descriptions (like the 18-page set of specs for a ping-pong ball drawn up in compliance with the law.) The bill calls for more incentive contracts, and wider use of standard commercial items by the military.

S. 4294 provides a more realistic approach to the problems of defense buying than has been evident in Congress for a couple of years. We think it deserves widespread support.

But the morass of misunderstanding around military buying (and the industrial purchasing practices it uses) won't be easily dried up. Already new investigations into defense buying are being requested in the House. If past performances are any guide, we may get new revelations of "scandals"; more baiting of military brass and big defense contractors; more downright disregard for the true nature of negotiation; more scare headlines; more assaults on the morale of a generally first-rate group of government purchasing people.

Congressional investigations are good and necessary things when properly used. And anyone spending billions in public funds can't demand kid-glove treatment from them. One can ask, nevertheless, that the investigators foreswear politics; that they seek the help of independent, objective purchasing experts in evaluating the quality of military procurement; that Congressmen, the military, and the civilian experts get straight on definitions. (Constant repetition of the term "competitive bidding", for example, as opposed to negotiation, wrongly implies that competition is not present in the latter.)

Is it too much to hope that both houses of Congress can get together on a reasonable program for military procurement? Red tape leads to confusion. Confusion leads to suspicion and indecision. The combination could be fatal now, when there's so little time and so much at stake.



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## NEW LEDLOY 170 TUBING

average machining speed 170 surface feet per minute

Here's the fastest-machining steel tubing ever produced—and only Ryerson has it available for immediate shipment from stock. Ledloy® 170 is a cold drawn, seamless product of low carbon analysis with .15% to .35% lead added. It promises a minimum increase of 25% in productivity of machined parts or components. Sizes range from 1" to 2½" O.D. with maximum  $\frac{3}{8}$ " wall thickness. Other sizes can be supplied promptly.



Part produced from Ledloy 170 Tubing for machining-comparison at National Metal Show.

## NEW LEDLOY 375 BARS

average machining speed 375 surface feet per minute

This newest addition to Ryerson free-machining screw steel stocks is the world's fastest-machining steel. Assigning the figure 100 to B-1112 and using this as a base, Ledloy 375 has a machinability index of 205 plus. It rates about 64% higher than B-1113 and about 20% higher than Ledloy 300.

Ledloy 375 bars presently in Ryerson stocks include rounds in sizes from  $\frac{1}{4}$ " to 1", hexagons  $\frac{1}{4}$ " to  $\frac{5}{8}$ ".

Ask your Ryerson representative for complete details on these new steels. And call Ryerson for an unequalled selection of cold finished bars and tubing, including the largest stocks of Ledloy 300 (also known as Ledloy A) and Rycut® leaded alloys—the fastest machining in their carbon ranges.

### MACHINING COMPARISON\*

Ledloy 170 Tubing vs. Nonleaded Tubing

	Ledloy 170		MT-1015	
	Speeds	Feeds	Speeds	Feeds
Center drill	172 s.f.m.	.005"	110 s.f.m.	.005"
Form tool	172 s.f.m.	.0008"	110 s.f.m.	.0008"
Boring tool	172 s.f.m.	.007"	110 s.f.m.	.007"
Cutoff	172 s.f.m.	.0013"	110 s.f.m.	.0013"
Thread	27 s.f.m.	—	20 s.f.m.	—
Tap	18 s.f.m.	—	12 s.f.m.	—
Production time	35 seconds		49 seconds	

\* As demonstrated at National Metal Show, Cleveland, 1958.

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For More Information Write No. 205 on Inquiry Card—Page 32

# There Are No "Right" Answers In Material Management

NO P. A. is crazy enough to go to his management and say "I think we should adopt the materials management type of organization because it will give me a bigger job and, besides, I deserve some recognition." Yet the fact is if management adopts the materials management form of organization, the P. A. won't be hurt at all. He'll have no place to go but up. And it won't be (strictly) because of his good looks or personality! For, as a materials manager he will be in a better position than ever before to contribute to the objectives of the business as a whole.

What are these objectives? They vary from company to company and industry to industry, of course. But one objective is basic and common to all private enterprise: profit. Each organic function of the business should contribute, in some way, to this key objective. The materials function is no exception. Its general objective is to provide needed materials at lowest over-all cost.

## Primary Objectives

This objective can be achieved by paying as little as possible for purchased materials. But, as every thinking P. A. knows, it can be achieved in other ways. In most businesses, there are at least nine different ways the materials function can achieve its basic ob-

*This is the third article in a special series on materials management. The fourth article will appear in the Mar. 16 issue.*

*Successful materials management demands intelligent balancing of inter-related objectives. Achievement in one area brings sacrifice in another. This is the real reason management must give purchasing scope to do a complete materials management job.*

By Dean Ammer

jectives. The following are the "primary" objectives of materials management:

**(1) Low Prices for Purchased Materials and Services.** This is the most obvious of the primary objectives since it is the one most directly related to the general objective of low materials costs. It is applicable to all purchases of materials and services including transportation, capital equipment, etc.

**(2) High Inventory Turnover.** When inventories are low relative to sales, investment in stocks is minimized. This makes for low storage and carrying cost and thereby contributes to fulfillment of the general materials objective.

**(3) Low Cost of Acquisition and Possession.** When materials are handled and stored efficiently, their real cost is naturally much lower. Acquisition and possession costs are low when receiving, materials handling, and stores operate efficiently. They are af-

fected adversely by high obsolescence or deterioration of inventories.

**(4) Continuity of Supply.** When production stops because of lack of material, costs can soar. This is particularly true of highly automated processes where costs are rigid and cannot be eliminated when production is curtailed because of lack of material.

**(5) Consistency of Quality.** This objective is limited in scope to material from outside suppliers. (Manufacturing is responsible for maintaining quality standards on its processes.) In practice, consistency of quality may or may not require a great deal of attention from materials personnel. When the material purchased is homogenous and in a primitive state of production (e.g. sand or gravel), quality is rarely a big problem for materials personnel. But when the product is at an advanced stage of manufacture and specifications are rigid, quality



A. M. Kennedy Jr.

## Purchasing Has A Selling Job to Do

"The purchasing agent is the natural man to become materials manager," says A. M. Kennedy, Jr., vice president-purchases, Westinghouse Electric Co. Kennedy heads the N. A. P. A. Committee on Materials Management. He says the committee's first job is to, "find out just what materials management is". Almost everyone agrees that materials management embraces purchasing, traffic, and inventory control. But does it also embrace production control, shipping, receiving, receiving inspection, and materials handling? This is something the committee intends to investigate. Another

important area of materials management which is often overlooked, according to Kennedy, is the development of knowledge of new and improved materials. The materials manager should be his company's "eyes and ears."

Materials management isn't going to be too easy to sell. It's bound to be viewed as a "grab for power" by purchasing. "The only way purchasing can sell itself is to convince other functions that it is genuinely interested in helping them," Kennedy declares. Purchasing will get added responsibilities only when it convinces other departments it will help them.

can become the single most important materials objective. (For example, quality is the major problem for a buyer of component parts for inter-planetary rockets or missiles.)

**(6) Low Payroll Costs.** This objective is not exclusive for materials management by any means. Every department in the business can contribute to profits by watching its payrolls. Unfortunately, the materials manager who is too eager to achieve an objective of low payroll costs is often frustrated in his efforts to achieve other objectives. This will be discussed later in this article.

**(7) Favorable Relations With Supply Sources.** Many companies not only rely on vendors for supplies but also for much of their research and product development. This makes good relations with suppliers of critical importance to future profits. Present profits are also affected by supplier relations as every buyer knows who has had to call a supplier to put through a P.O. change.

**(8) Development of Personnel.** This objective isn't unique to the materials activity by any means. The success of every activity depends directly on the people who take part in it.

**(9) Good Records.** Paperwork is a means to an end, not an end in itself. So it may seem surprising that good records should be considered a primary objective of materials management. Shouldn't they be a strictly secondary objective instead? After all, records only help materials personnel do a good job; they don't contribute directly to profits.

Nevertheless, good records are a primary objective in materials management—at least in the purchasing and traffic functions—for the same reason they are a primary objective in the accounting department. Buyers and traffic men spend their company's money and thus hold positions of trust. They must be above suspicion at all times. Good records, used with sound controls and periodic audits, can help remove suspicion from completely honest individuals working at a job that is often popularly associated with graft and corruption. (This is particularly true in governmental procurement.)

### Secondary Objectives

Secondary objectives in materials management are not nearly so limited in scope and variety as primary objectives. They can vary widely from industry to in-

dustry and company to company.

A secondary objective is one which only indirectly concerns a problem in materials management. More often than not, it is a primary objective for some other department.

Product improvement is a good example. It can be a secondary objective in materials management since materials personnel can, through their unique contacts with suppliers, often make substantial contributions to product improvement. But their suggestions must be finally approved by engineering. So product improvement is a primary objective for engineering but only a secondary objective for the materials activity.

There are literally hundreds of different secondary objectives in materials management. Among the more common ones are:

**(1) Favorable Reciprocal Relations.** Decisions on reciprocity concern both materials and marketing activities. Sound policy involves an intelligent balancing of the pros and cons of using one's buying power as an instrument for getting (or retaining) sales volume. In consumer goods industries, reciprocity is rarely a problem. But in producer goods industries (particularly those

making homogenous "basic" products), it can be extremely important both to the marketing manager and the materials manager.

**(2) New Materials and Products.** Although it is not a primary part of their jobs (basic responsibility rests with engineering), materials people can and should suggest new products and materials that can be profitably used. More than any other group, they have the contacts with the supply sources that create technological innovations.

**(3) Economic Make-or-Buy Decisions.** Whether to make or buy a given item is a complex problem involving engineering, manufacturing, purchasing, financial, marketing, and legal considerations. Materials activities often spark make-or-buy decisions since they are most intimately concerned with the problem of source selection. In fact, they often wind up making the actual decisions on such problems.

**(4) Greater Standardization and Interchangeability.** The fewer the number of items that need be stocked, the more simple and efficient the materials management process. Thus, it is to the selfish interest of materials people to promote standardization. (And it is also, of course, to the economic interest of the company as a whole.) But basic responsibility for changes in product design and specs is still engineering's.

**(5) Product Improvement and Simplification.** This is the single most important objective of the engineering department. Engineering of almost any product, however, is a compromise between technical and economic objectives. Engineers don't need any help on the technical objectives. But they need a lot of assistance from materials people if their designs are also to be consistent with economic objectives.

**(6) Amiable and Cooperative Inter-Departmental Relations.** The materials activities serve and deal with every other function of the business. A large part of their success depends on how well they work with others. Materials personnel are usually fully aware of this. Some have even gone so far as to arrange lectures in order to

explain their function to others and thereby stimulate a spirit of interdepartmental cooperation.

**(7) Long and Short Term Economic Forecasts.** This may seem like an unusual materials activity. But the fact is materials personnel are strategically situated when it comes to knowing prices, costs, and general business trends. They have to know what's going on to do their jobs effectively. By passing on their analyses they can help top management do a better job. This is particularly true in the small or medium-sized company that can't afford a company economist.

The aforementioned primary and secondary objectives are applicable to most companies. How-

ever their relative importance varies. In an industry dealing primarily with volatile raw materials like copper or leather, the price objective is paramount. The materials manager can save more by shrewd purchase timing than he can by masterful achievement of the other eight primary objectives. In other industries, other objectives will be paramount. In equipment and instrument companies, for example, inventory turnover may be the single most important objective; thousands of parts must be stocked to make hundreds of different models. In such a situation it's awfully easy for a company to strangle itself on its excess inventory.

(Please turn to page 210)

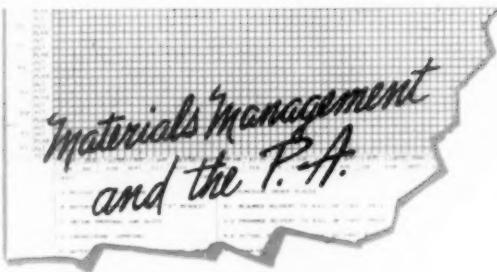
### No Easy Answers in Materials Management

Materials management is not an exact science. It requires constant balancing of inter-related objectives by a materials manager responsible for their achievement. Unfortunately, as is illustrated below, concentration on any one materials objective inevitably requires that achievement of other objectives be sacrificed. This makes the materials job tough—but it also makes it both interesting and challenging.

#### Primary Objective

#### Inter-related Objectives that Are Adversely Affected

(1) Minimum Prices for Materials.	High Inventory Turnover, Continuity of Supply, Consistency of Quality, Low Payroll Costs, Favorable Relations with Supply Sources.
(2) High Inventory Turnover.	Minimum Prices, Low Cost of Acquisition and Possession, Continuity of Supply, Low Payroll Costs.
(3) Low Cost of Acquisition and Possession	High Inventory Turnover (sometimes), Good Records, Continuity of Supply, Consistency of Quality.
(4) Continuity of Supply	Minimum Prices for Materials, High Inventory Turnover, Favorable Relations with Suppliers, Consistency of Quality.
(5) Consistency of Quality	Minimum Prices for Materials, High Inventory Turnover, Continuity of Supply, Favorable Relations with Suppliers, Low Payroll Costs, Low Costs of Acquisition and Possession
(6) Low Payroll Costs	Maximum achievement of this objective is possible only by sacrificing all other objectives.
(7) Good Supplier Relations	Low Payroll Costs, Minimum Prices, High Inventory Turnover.
(8) Development of Personnel	Low Payroll Costs. (Other objectives might also be affected.)
(9) Good Records	Low Payroll Costs (Other objectives might also be affected.)



## Materials Management

**H**IGH inventory turnover rates don't come naturally in industry. In fact, "good inventory control requires constant vigilance," says H. B. Boshea of the Bridgeport Thermostat Division of Robertshaw-Fulton Controls Co. in Milford, Conn.

Though Boshea's title is purchasing manager, he functions as a materials manager. He is responsible for all purchasing (including the buying of capital equipment) and inventory control. In addition, he is chairman of the make-or-buy committee and serves on the plant's material review board and its cost improvement committee. Thus, Boshea is in the act on all phases of materials management—from the inception of the need for the material to its use in the product.

### Inventory Reduction

Although Boshea's responsibilities are broad, he doesn't reign over a big empire by any means. Reporting to him are two buyers, a secretary, and a clerk-typist. (The plant as a whole employs 460.) Though his staff is small, Boshea gets results. Inventory reduction is a good example. By imaginative materials management and a lot of hard work, Boshea, with the cooperation of other departments, has successfully boosted inventory turnover by 25%.

At Bridgeport Thermostat, this is a greater accomplishment than it would be at many plants. Many of Bridgeport's products (bellows for controls and valves that use bellows as controls) are made to



**H. B. Boshea's title is purchasing manager, but he actually functions as a materials manager.**

order for specific customer applications. The company likes to give prompt service to its customers.

There's just one hitch, however. Lead time on many of the special shapes and alloys used in making the bellows can be extremely long. For example, a year must be allowed on certain highly specialized nickel alloys! Such a situation naturally makes for big inventories. It also makes inventory reduction particularly challenging; it's possible only with imaginative materials management.

Boshea, like other good materials managers, watches every order that's placed to make certain that stocks aren't getting out of line. But this sort of control just isn't enough. More drastic measures are called for. Boshea's "secret weapon" is supplier cooperation; here's how he makes use of it:

**● Supplier Carries the Inventory.** One of Bridgeport's most expensive items is capillary tubing. Boshea has reduced inventories to

rock bottom by arranging to have suppliers stock tubing for him. He then orders from their stock and then they re-order so there is always a normal inventory on hand to protect Bridgeport's customers. Result: Bridgeport's actual inventory is never more than what's required for actual customer orders but both Bridgeport and its customers are protected by the reserve stock carried by suppliers.

### ● Standardization-in-Action

Purchasing took a close look at its screw machine parts. It discovered that one screw machine blank would often be adequate for many different parts. So why not combine requirements and run off all similar parts on the same screw machine run? Bridgeport does just that and saves in two ways. First, the combination run reduces unit costs. Second, inventories are reduced.

### Stock Non-Standard Material.

Many companies rely upon warehouses for a readily available supply of standard materials. Bridgeport goes further. It relies upon

# in the Small Plant

SEPT 15

ISSUED BY COST IMPROVEMENT COMMITTEE

14

A PIECE THIS LONG COSTS 1093

CONSERVE  
COPPER CAPILLARY  
HOW?

1. USE CARE - AVOID TANGLING  
2. ADJUST CUTOFF LENGTH TO  
MINIMUM LENGTH - ACCURATELY

RETURN SUGGESTIONS TO  
COST IMPROVEMENT COM.

The Cost Improvement Committee, of which Purchasing Manager Boshea is a member, puts out a weekly "Value News" designed to stimulate cost consciousness throughout the Bridgeport Thermostat Organization.

them for non-standard types of stainless steel. Here's what Boshea does: He makes a deal with the warehouse to carry a given special material in stock. He commits himself to buy the material eventually but agrees to take it only as needed. This means Bridgeport can live off a hand-to-mouth stock as far its own inven-

tory is concerned. In fact, sometimes the material is never even bought by Bridgeport. Special stainless steel forging stock is carried by the warehouse at Bridgeport's request; then Bridgeport's forging vendors draw upon this inventory for their requirements.

**Vendors Stock Miscellaneous Materials.** Bridgeport suppliers

also help on more standard materials. They carry stocks of chemicals, corrugated cartons, etc. Bridgeport commits itself for the items but agrees to take the stock only as required.

Vendors are quite willing to provide these added services for good customers such as Bridgeport. Reason: by carrying stock, they are guaranteed the business and this, in turn, helps cut their costs and boost their efficiency.

## Broad Role

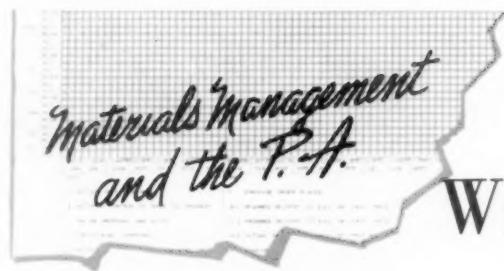
Since he's an "alumnus" of General Electric, it is not surprising that Boshea plays as dynamic a role in value analysis as he does in inventory reduction. He not only practices value analysis in the purchasing department but is also a member of a plant-wide cost improvement committee. Major activity of the group is methods and equipments analysis. "We go out on the floor, look at operations, and see if we can dream up any ideas that can save some money," Boshea explains.

Other members of the committee include the chief engineer, the plant superintendent, the chief cost estimator, and the supervisor of production engineering. Boshea (who is a civil engineer with a degree in economics) calls himself the "economic expert." Since even changes in manufacturing operations usually involve purchasing—even if indirectly—Boshea generally gets cost data for every value analysis project.

He's also able to make good use of his specialized buying knowledge in his work with the cost improvement committee. For example, one recent project was a change in capillary tubing sizes in order to get a better break on prices.

Though he's the expert on prices, Boshea's role on the committee isn't compartmented by any means. As he points out, "It's difficult to say who does what on the committee; everyone more or less gets in the picture on everything."

It is by getting "in the picture on everything" that Boshea has become more than a purchasing manager and is, in all but title, a full-fledged materials manager.



# What Happens When a

By John Van Deventer

**A**NOTHER purchasing man has taken the big step. Last year, the purchasing manager of Air Products, Inc., Trexlertown, Pa., became a materials manager.

Fred Drake is the man. Under his control is the whole materials show: purchasing, expediting, traffic, receiving, stores control, warehousing, spare parts, and the control and distribution of materials taken to the production floor. This adds up to a mighty big department: 175 people.

Why did Drake get the job? Two reasons: One, he went to the trouble of selling Air Products' management on the value of having one person responsible for all materials activities. Two, he has the experience and ability to handle the job.

Drake gives considerable credit to an AMA conference he attended

ed, "Cost Reduction through Effective Materials Management," for ideas on selling his management.

Says Drake: "I got a lot of ammunition for arguing the materials management concept from George Fadler of Westinghouse, one of the conference speakers. Fadler made two key points: One, materials are managed best when all material functions are under the control of one person. Two, the P. A. is the best qualified man. I noted the arguments George used to support these two points and used them to sell our management.

## How Program Started

Drake, who has been in purchasing since 1935, came to Air Products in 1957. His first big step towards a materials management

type organization at Air Products was to consolidate purchasing into "one" department. Prior to his arrival there were four different buying departments: one each for engineering, manufacturing, operations, and construction. Drake knocked down the walls and created one purchasing department. Then he began pointing out to management the need for broader purchasing responsibility. This led eventually to purchasing's embracing all of the material functions.

Concentration of material control works effectively at Air Products in spite of the diversity of its operations. (The company designs, builds and operates low-temperature plants for gas liquefaction and separation — called applied cryogenics. It also makes equipment for welding in the field of prescribed oxygen therapy and operates a chain of generating equipment stations to market gaseous and liquid products.)

Although he's had the job of managing materials for over a year now, Drake hasn't as yet adopted the title of materials manager. He still uses his old title of general purchasing manager. Asked why, he replies: "That question usually leads to another. Is purchasing just a phase of materials management, or is purchasing synonymous with materials management? Frankly, I don't think either question is worth haggling over. The important question is: who should get the job of managing materials? And in my opinion, the purchasing agent is best qualified. Whether he takes the title of materials manager or keeps his purchasing title doesn't make much difference."



**Successful materials management requires teamwork.** Shown here is the Air Products' materials management team at one of its weekly conference sessions. Left to right: S. J. Reinhard, spare parts; A. Wilson, purchasing agent; F. B. Drake, general purchasing manager; G. Brandt, assistant to Mr. Drake; R. A. Brady, traffic manager; J. F. Hayes (back to camera), material control.

# P.A. Becomes Materials Manager?

Drake had no established pattern to follow in organizing the 175 people in his materials department. Very few companies have purchasing departments with such broad responsibility. So Drake, in effect, had to start from scratch.

Drake's main organization objective was to eliminate excessive supervision. He divided his department into just four groups (see organization chart): purchasing, material control, traffic, and spare parts. The four group heads report to Drake through his right hand man, George Brandt.

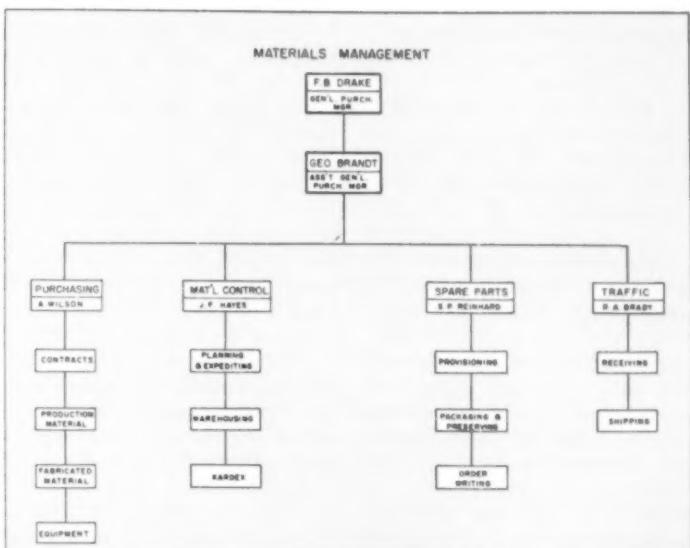
The material control group includes everyone connected with inventory management and expediting. Naturally enough, Drake put traffic, shipping, and receiving in one group. With their interrelationship, Drake felt that these three functions are best organized when reporting to the traffic manager. The spare parts group consists of the packaging, preserving, and order section people. This leaves the purchasing group free to carry out its primary objective: buying.

## Material Status Board

Having once reorganized his department, Drake went to work to deliver on his promise of greater materials efficiency. There are many examples that show how this is being done. One of the best is Drake's "panel material control" system. The idea is to post on an aluminum panel board the status of all material pertaining to one of the company's projects. (Air Products is basically a job shop; each "job" is called a "project.") Expediters post material status to the board at three stages in the materials cycle: requisition-



**Fred Drake:** "We're out to realize the enormous potential of a materials department." (Drake is a member of the new NAPA Concept of Materials Management Committee, of which A. M. Kennedy, Jr., vice president of Westinghouse Corp., is chairman.)



**In organizing his department, Drake's main objective was to avoid excess supervision. That's why his department has just three groups: material control, traffic, and purchasing.**

## Why the P.A. Should Be Materials Manager . . .

**Inventory control.** (The heart of materials management.) An enormous chunk of a company's assets is tied up in inventory—raw materials, work in process, and finished goods. Best way to get an optimum investment return is to make one person—a materials manager—responsible for all inventory. With one person running the show there's a greater concentration of effort on good inventory practice (expeditious materials handling; less lost production time caused by shortages; flexibility for changing inventory levels to meet production rates; balancing acquisition and inventory costs; having suppliers carry inventory, etc.)

More than any other department, purchasing can get the best return on inventory investment. Reason: purchasing's superior knowledge of what determines inventory levels: market conditions, prices, supplier reliability, lead time, quantity discounts, storage charges, insurance costs, etc.

**Traffic.** Transportation charges are an important part of material costs. Thus traffic is a key element of materials management.

Purchasing works closer with traffic than any other department to keep inbound transportation costs at the lowest level, so it's in the best position to coordinate traffic with the other material functions.

**Receiving and receiving-inspection.** These activities belong under the materials function. Reason: procurement isn't complete until the right quantity and quality of material are delivered to the point of use. And purchasing is closest to the problems of receiving and receiving-inspection because it keeps track of supplier delivery and quality performance.

**Planning and research for materials.** A company's competitive position and its capital utilization efficiency are determined by its market knowledge and forecasting skill—that is, its knowledge of present market conditions as they affect commodities purchased, and its ability to predict future market trends accurately in terms of price and performance.

Purchasing can provide the professional economic service needed. No other department can match purchasing in this respect. And purchasing can do an even better job of making use of its economic knowledge if it is part of an integrated materials department.

**Conclusion.** Materials can best be managed when one person has line responsibility for buying, for inventory control and stores, and for the receiving, receiving-inspection and traffic functions.

*Much of the material in this box is based on a talk given by George Fadler, Director of Purchases, Westinghouse Electric Corporation, at a recent American Management Association seminar on materials management.*

tions being processed, active purchase orders, and completed purchase orders. Here's how the system works:

**(1) When a project first starts,** an expeditor begins getting copies of requisitions. For each requisition, the expeditor types on a card—designed to fit the panel board—pertinent information about the requisition. He puts this card in the "requisitions-under-negotiation" section of the panel board.

**(2) When a requisition is converted to a purchase order,** the expeditor uses his copy of the purchase order to insert additional information on this card pertinent to the order. On the card he puts pertinent information about the order: vendor's name, date order was placed, acknowledgment, etc. This card is then dropped to the "active pur-

chase order" section of the material control panel board. The requisition card is taken off the board.

**(3) When the order is completed,** the expeditor gets a copy of the receiving report. He then makes up still another card. He then drops the card in the "completed purchase order" section of the panel board. In this way, the panel board gives an up-to-date visual display of the material status of a project.

**(4) To aid project and production personnel,** the panel boards are photographed periodically (once a month at first and then more often). From the reproduction, the print shop makes up what Drake calls a "vest pocket" edition of the material status of the project.

"This is the only system we know of," says Drake, "where you

have complete, up-to-date information on the status of a project in visible form in one place."

### Looking Ahead

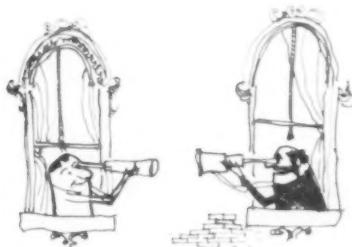
Drake's panel material control system works effectively only in a set-up where all materials activities are concentrated in a single department. Such a "materials management approach" has other advantages. For example, Drake points out that "you get much tighter inventory control when purchasing and stores are under one head. Right now we carry 8000 items in production stores and about the same number in spare parts. We're going to put the record keeping for inventory on IBM machines. We expect to reduce inventory levels this way. And we hope eventually to use mathematics and a computer to obtain optimum inventory levels."

# Don't Be Afraid to Break the Rules

*Buyers who buy by the book may be right most of the time, but sometimes they let big opportunities slip by.*

By **Stuart F. Heinritz**

**P**URCHASING today is a science. That statement is scarcely open to argument. We have books, and systems, and formulas, and college courses, and standards of evaluation to prove it. We have but to look at the disciplined efficiency and uniformity of the modern purchasing office, in contrast to the earnest fumbling and rugged individualism of an earlier day that is still within easy memory, to recognize purchasing science in action. We have audited records of accomplishment and a secure place in every management organization worthy of the name, as evidence of the value of scientific purchasing.



**A generation ago about the only way a P.A. could tell how well he was performing his job was to see what someone else was doing.**

A business generation ago, the man who was handed the responsibility for procurement had to play pretty much by ear. He had few standards of performance to guide him or to help evaluate his accomplishment. He had to depend on his own intelligence and common sense, his ingenuity, his native bargaining skill and persistence, to do an acceptable job. It was only through experience, and often through errors, that he learned to do a better job. He could never be sure that he was doing the best possible job. So he kept trying. If he needed a point of reference, about the only thing available to him was to find out how the other fellow was handling similar problems. Often as not, it was the other fellow who bor-

rowed from him. From such beginnings, and through such efforts, the science of purchasing was forged.

## **Guesswork Eliminated**

Today, the accumulated knowledge and experience of thousands of purchasing agents over the years, their mistakes and their successes, under all sorts of varying circumstances, have been recorded, distilled, analyzed, and organized to set forth the criteria for right decisions, the principles of right action, the effective methods of procedure, and the standards for appraising results. The buyer's problems are more complex, but most of the guesswork has been eliminated. He has more and better buying tools to work with. The blueprints of organization and procedure are his to scan. The rules of his craft, evolved through patient trial and error, are well established, and they are open to anyone who is willing to learn. This is the hallmark of a science.

Instead of going through a long, sometimes painful and generally costly apprenticeship, today's newcomer in purchasing—provided he has acquainted himself with the science and has reasonable maturity of judgment—can approach his responsibility with all the confidence of a seasoned veteran, buying "by the book", and nine times out of ten he will be right.

Every man in purchasing owes it to himself and to his company to know and apply the established principles of procurement science. Every teacher of purchasing has the obligation to stress these basic principles as the foundation of all good buying.

Having duly acknowledged these obligations, and with no apology for a long and uncompromising record of carrying the torch for that science, it seems appropriate to take a closer look at that one other time in ten when the rules don't apply. This is the honest thing to do. It need not destroy faith in the validity of purchasing science. It should result in greater respect—through better understanding—for "the book."

Over the past few months, we have had some very stimulating correspondence and conversations with men who have contributed greatly to the science of purchasing and are among its ablest practitioners, but who do not hesitate to depart from the prescribed pattern when they have reason to do so. They are not overawed with reverence for their own creation. None of them, I am sure, subscribe to the philosophy that "rules are made to be broken." Rather, they know that the end is more important than the means, the principle is more basic than the rule by which it is expressed, the "why" comes before the "how." Perhaps this is a carryover from those formative days before the rules were set down and acquired the sanctity of the written word, and when all the buyer had was the problem and the will to find the best solution.



There are times when it pays to put all your eggs in one basket—so long as you watch that basket—in this case a supplier—carefully.

Here, in paraphrase, is the comment that started this line of thought. The speaker is director of purchases for a multi-million, multi-plant, multi-product corporation whose wares, in all probability, have a place in your own home. "We all know that we should have two or more sources for everything we buy. Does it shock you if I admit that we have only one source for at least three of our very important items? We do, and I may not even hint at why or what we would do 'if.' Suffice it to say that there are good reasons, and we have gone through World War II and Korea, several strikes, a fire, and one flood without any production curtailment due to these products. There are times when it is desirable to put all your eggs in one basket. I need hardly add that when you do, it is only prudent to have adequate reasons—and to watch the basket."

Another respected purchasing man, close to the top of his field, adds this: "When there's one supplier who stands out above all the rest—and it's surprising how often this is the case—it's stupid to deal with the second best. Any part of your business you place that way weakens your position instead of strengthening it."

And a buyer who has made a successful career of purchasing for a small business has this to say: "With our volume of purchases, I rarely divide my orders. Our best insurance is to make our business as worthwhile as possible to our suppliers. Our vendors know how much business we

have to place. If they have to be kept a little hungry to keep them honest and reliable, they're not the kind of suppliers I want to deal with."

#### Good Service Is Not a Bonus

On the subject of service, one of these buyers comments: "I'm sick of all this talk about the bonus values of service. We expect good service. It's a factor that can be measured only in terms of demerits when the supplier falls down on his obligations or promises.

"There are just two kinds of service that I love. One is the kind I never hear about because the vendor consistently does his part of the job without pleas or prodding. The other comes from the fellow I can get on the phone when I'm in a jam because of some sudden emergency or because someone in our organization has goofed, knowing that he'll turn his plant inside out if necessary to see us through."

Another view: "Service, like everything else, has its price tag, and we pay for it. Suppose, for instance, a buyer doesn't buy his own engravings, due to lack of information or time or desire, he should expect to pay a 15% service charge to the printer who does this work for him.



The buyer who lets himself be wined and dined on a lavish scale—who covers up his mistakes via air freight—who changes his mind every other day—can only expect to pay more for what he buys.

If he permits himself to be 'cultivated' with excessive entertainment, he can only expect higher costs for the things he buys. If he consistently requires air express shipments, stops, go's, changes, he will have to pay more. If the supplier doesn't raise his prices, I suspect it may have been a bit high in the first place to cover the cost of service. If that is not the case, his business is not as desirable profitwise to the supplier, and that isn't good for the buyer either.

I do not mean that all buyers should buy all engravings, or that they should not avail themselves of premium transportation methods if the occasion demands it. I do mean that the generality we call 'service' should be examined in terms of dollars and cents, and that the cost of any service that is over and beyond what is adequate for the purpose should be appraised at its true worth."

#### Facing the Facts

All of these buyers have a frank and healthy respect for the price responsibilities of the purchasing job. "Of course, we buy on the basis of

quality, service, and price—with price a poor third. We know that materials that aren't good enough to do the job and materials that aren't delivered in time are a bad buy at any price. And we know that you can't measure value without balancing price against quality. But whenever quality and service are adequate—not necessarily super—then let's face it, price has to be the determining factor."

Again: "Is it all right for me to say out loud and publicly that price is the important factor in most of our purchases? Last year a saving of \$167,000 in our purchases was the profit equivalent of \$1 million in new sales. This year, due at least in part to last year's purchase savings, we have to save \$185,000 to equal \$1 million in new sales, profitwise. Price—or, more accurately, cost—is probably the most important factor to us. Instead of soft pedaling this, or being ashamed of it, we are always conscious of cost. This is one of our biggest contributions to the profit welfare of our company."



You may strike out in negotiation, but at least you get a chance to get the bat off your shoulder.

How do we find this lowest cost? Purchasing science tells us it is through competition and comparison. But one of our hard-bitten correspondents gives this as his opinion: "Once upon a time, a competitive bid may have been a competitive bid. Now, in spite of the various congressional laws, I am not so naive as to believe that the uniform prices in many industries are merely coincidence. If I am right, why go through the motions? We find ourselves negotiating more and more. We may not always win, but at least it gives the buyer a chance to use his ingenuity and not strike out automatically with his bat on his shoulder."

Price, we have already noted, must be balanced against quality to determine value. "It is almost impossible to question the value of quality without running the risk of being misunderstood," says a buyer. "I believe that technical suitability is a more accurate description of our goal than the more general term, quality."

#### Different Definitions

Perhaps our whole discussion hinges upon definitions. Quality means suitability. Service means reliability. Price means cost. Substitute these values in the purchasing formula, and much of

#### What Makes the Exceptional Buyer . . .

As this article points out, purchasing for the beginner is much easier today than it was a generation ago. Through the mistakes and successes of the past, the basic principles of good purchasing have been established. By following the book, just about any buyer can do a satisfactory purchasing job.

And just like the buyer who does a "satisfactory" job, the truly skilled purchasing executive also follows the book. He has great respect for it. What sets him apart is his willingness—in certain situations—to break the rules. This is what makes him a creative purchasing executive and his hallmark is a combination of experience, intelligence, imagination and courage.

the conflict with abstract purchasing science is resolved. And it should be noted that using the criterion of suitability does not necessarily mean downgrading quality or setting our standards at minimum subsistence levels. In judging suitability, it is the purpose that governs. Also, a good deal depends upon the viewpoint. Remember, we are speaking here of purchasing. Here's testimony: "In our business, our finished products are of the highest quality, and many sell for a premium price. As a seller it may be all right to supply a product in such a package that customers will pay a premium, including the cost of packaging, to please their own vanity. As a buyer, I find it more justifiable to buy those components that perform their function adequately and well (without over-packing, for instance) but without losing the very least bit of the final result desired. I find no fault with the desire for quality. I do suspect that we frequently confuse the generalization, quality, with the specific result desired."

#### There Are Exceptions

I am spared the necessity of summarizing these viewpoints, for our correspondents have done it for me.

"I agree with practically all the generalizations that make up the science of purchasing—as generalizations. In our own practice, I find about as many exceptions as conformance. We still regard them as exceptions. The principles have to be considered in relation to the conditions of the specific case."

"I respect all the rules of purchasing and find them helpful. The most important rule is the rule of reason."

"I believe there is a value in questioning any good practice as it applies to any one particular case. We are concerned with specifics. It is better to be right than to explain perfectly why you were wrong for the right reasons."

***A planned program for:***

# Selecting and Evaluating Vendors

*Here's how Republic Aviation makes sure it selects only vendors who can meet exacting quality standards and how it follows through to be sure supplier quality doesn't slip.*

**By Ned Kellogg**

AS YOU approach Republic Aviation Corporation (Farmingdale, N.Y.) there's a large sign that reads: "Quality Is Our Most Important Product—You Build It." The message is aimed primarily at company employees, but it can't miss having impact on the 3600 suppliers who do business with Republic.

As any vendor who has been in contact with Republic's purchasing department knows: You don't get the business unless you're a quality supplier; you don't keep it if your quality starts to slip.

What makes Republic so successful in getting the quality it wants? Basically it's the result of a carefully worked out two-point program consisting of: (1) a rigorous checkout system to screen potential suppliers and (2) a highly effective vendor evaluation program which gives purchasing an up-to-date analysis of vendor performance.

Here's how Republic carries out these programs:

**SOURCE SELECTION:** If a buyer is interested in a new supplier, he puts in a request for a supplier survey. This calls for an investigation into everything that might affect the kind of job a vendor can do. Included would be a study of the supplier's production facilities, the products he makes, his personnel, financial status, labor relations, customers.

If the survey request is approved, the job of making the

study is turned over to one of the purchasing department's 12 field representatives. The field representatives go into supplier plants to get on-the-spot information. When there are special problems, a team approach may be used, with representatives from engineering, manufacturing or other departments accompanying the field purchasing representative.

Republic's experienced field men usually complete their survey in a day or less. The inspection, nevertheless, is thorough. If a vendor passes, the odds are he will be able to meet Republic's demanding quality standards.

After making the survey, the field representative sends in a detailed report to Republic Purchasing Manager Fred Moore. A negative report is usually the kiss of death so far as the supplier is concerned.

The surveys, of course, take time and cost money, but Republic is convinced that they pay off. Purchasing's intensive screening

of new suppliers has prevented a lot of foulups and saved the company a great deal of money.

**VENDOR EVALUATION:** This is the program Republic uses to make certain its suppliers don't let their quality slip. An important tool in the program is the vendor evaluation sheet (see cut) which lists 24 vendor rating points. The buyer who has the closest contact with the vendor does most of the rating.

For example on point 1 on the vendor evaluation sheet, "delivers per schedule," the buyer who deals with the vendor in question has to decide whether the vendor "always," "usually," "seldom," or "never" delivers on schedule. If he believes the vendor "usually" delivers on schedule he has a choice of giving the supplier three or four points as the vendor evaluation sheet shows.

Republic's vendor evaluation program is similar to the kind



**Republic Purchasing Manager Fred Moore**

*Eliminate your problems before they start . . .*



Where the work comes out—the purchase order typing pool. Republic's purchasing department has found it much more efficient to have the responsibility for

typing purchase orders centralized in a typing pool rather than having steno-clerks working for individual buyers.

used by many purchasing departments. However, it does have a new twist in that other departments are asked to help in the rating. Example: on the vendor evaluation sheet it's the receiving department that rates the vendor on point 3, "delivers per routing instructions." Quality control rates the vendor on point 2, "has good quality." Engineering and accounting also help with the ratings.

#### Pinpointing Trouble Spots

After the vendor evaluation sheet has been filled out, the vendor is given a grade based on his total point score. As Purchasing Manager Moore points out, however, there's no pass or fail mark. "We use the sheet mainly to put the finger on trouble areas. If there are any serious problems we call the vendor in and go over the problem with him to see if something can be worked out."

Republic's vendor evaluation program is not being operated on a once-through basis. Moore intends to re-evaluate the vendors periodically. "After all," he says, "companies do change."

In addition to keeping purchasing posted on vendor performance, Moore says the program has a number of other advantages: "Just the fact that a buyer knows he has to turn in a report on a vendor is likely to make him pay more attention to supplier per-

formance. The same holds true for the other departments that help with the rating.

"And another angle: suppose there's trouble on a particular shipment from a vendor. Someone—out of annoyance—is likely to say that he's always had trouble with that company. Actually it may be the first time the

supplier ever missed. If it's down on the record that the vendor usually does a good job, we're less likely to drop him. So in a way you might say the vendor evaluation program takes some of the emotion out of purchasing. At the same time it helps us maintain the quality we have to have."

REPUBLIC AVIATION CORPORATION		VENDOR		Date	
VENDOR EVALUATION SHEET		P - Purchasing	CODE	QC - Quality Control	
		E - Engineering		C - Central	
		R - Receiving and Traffic	A - Accounting		
The Above Vendor					
b s 4 3 2 1 0					
<p>1. Delivers per schedule</p> <p>2. Has good quality</p> <p>3. Delivers per routing instructions</p> <p>4. Supplies answers readily</p> <p>5. Advises us of potential trouble</p> <p>6. Not a chronic complainer</p> <p>7. Helps in emergencies</p> <p>8. Delivers without constant follow-up</p> <p>9. Free of labor problems</p> <p>10. Replaces rejections promptly</p> <p>11. Acts upon corrective action requests</p> <p>12. Furnishes necessary technical data</p> <p>13. Has good packaging</p> <p>14. Invoices correctly</p> <p>15. Issues credit memos punctually</p> <p>16. Furnishes affidavits or certifications</p> <p>17. Cooperates on design problems</p> <p>18. Has adequate Engineering Representation</p> <p>19. Does he maintain technical service in the field</p> <p>20. Accepts our terms without exceptions</p> <p>21. Keeps promises</p> <p>22. Does not ask for special consideration (Purchasing)</p> <p>23. Prices are generally competitive</p> <p>24. Does not ask for special financial considerations</p>					
OTHER POINTS 25					
TOTAL GRADE					
PURCHASING		Engineering		Quality Control	
Receiving		Accounting			
BE FAIR IN FILLING OUT THIS FORM. DO NOT BE PREJUDICED.					
CONSIDER ALL FACTS. MARK CODE LETTERS IN PROPER GRADE COLUMN					

# Are You "Stealing" Your Suppliers'

By Ray Marien

*When a vendor comes up with a new idea or a better method he should, according to purchasing theory, be rewarded with the order. But too often in practice another supplier takes over the idea, quotes a lower price, and gets the business. Is the buyer violating any ethical or moral code when he exploits the effort and expense of one vendor to the advantage of another? Mr. Marien examines the moral issues involved in such a practice and offers some practical suggestions for seeing that justice is done to all concerned. He uses the printing field as an example. But the principles involved apply across the board in industrial purchasing.*

ACCEPTANCE of gratuities by buyers is not the only moral problem in purchasing.

There is another equally important to the company and its reputation. This is the question of just how far a company should go in "picking the brains" of its vendors, without feeling obligated to give them the order.

The problem comes up in all types of buying—of components, of equipment, of raw material. It is particularly prevalent, however, in printing buying. Perhaps a discussion of this particular field will help develop principles that can be applied generally.

The printing business is highly competitive. It swarms with all manner and size of printers who sometimes gain an order by the slim margin of a few pennies per thousand forms. In fact there are so many, particularly in large cities that it is almost impossible for a buyer to see them all.

In recent years automation, both in the factory and in the office, has led to an increase in elaborate "specialty forms". These are more expensive than is commonly believed. It is not unusual to pay \$50,000 for a year's supply of invoices for example, of the sort that are used in a continuous ma-

chine billing operation. Thus, fairly substantial amounts of business are at stake here. And smart printing concerns go after it through the medium of staffing themselves with "experts" in the specialty forms field.

These forms design and systems specialists often spend a lot of time on an account doing work that should be done by the company itself. They dream up a system, make recommendations for equipment, design the forms, dry-run them on their own or other equipment. In short they go all out, selling not only the printing, but the complete installation.

## Thanks, But No Order

They do this because they expect to get the order. In many cases they do. In many others, however, they end up with nothing to show but a letter from the buyer informing them regrettably that the order was placed elsewhere. But "thanks just the same" for their help. It was "much appreciated".

Appreciation doesn't pay the grocery bills. And these idea men who have been actually selling their creative systems skill along with their product, find themselves sitting on the outside

watching their system in operation, with someone else's forms running through the machines. Meanwhile, the winning vendor, who contributed nothing more perhaps than the lowest bid, is basking in the Bermuda sun, enjoying a vacation made possible by the fat commission he obtained on the order.

This sort of back-of-the-hand treatment is handed out by some of our largest companies. They admit it openly and seem to feel there is nothing wrong with it.

A printing buyer for one of the dozen largest companies in this country puts it this way:—"Sure, we take their ideas without feeling obligated. Why should we automatically give them the order because we adopt their suggestions? Isn't that all part of their sales pitch? Do they think this puts them on such a high plane that they don't have to be competitive? No, sir!—My conscience doesn't bother me one bit, and why should it? . . ."

Why should it, indeed! Now let's turn the record over and listen to the unhappy salesman who lost an order to this paragon of printing buyers.

"Yeah—I found out the hard way how that fellow does business. Now I know how to handle him. Oh—I don't shun him! I'm not so mad I'd turn my back on a potential source of business that big. No, sir. I just don't give him one single idea. I save them for the vendors who not only want them but who appreciate them enough to see that I don't come out on the short end. And you know, it doesn't matter in the

*Mr. Marien, forms and procedures manager for Olin Mathieson Chemical Corp., is a regular contributor.*

# Ideas?

least that I don't give any ideas to Mr. Big. I still get bids from him. And when I'm low man, I get the order. Then it's my turn to sit back and laugh while the guy whose idea is used and whose brain-child I print, feels like crying about the whole thing. Only I don't really laugh about it. I can't because it's not funny. I know just how the other guy feels."

## Is It Ethical

Exactly how should this situation be met? What are the ethics involved? How far should a company go in soliciting and using these ideas, without feeling obligated? What should be done when the supplier whose highly-involved system is used comes in with an outlandishly high price for its product? Where do you draw the line in paying a premium for service? Here are some of the ways industry answers these questions.

First, the matter of ethics. No matter how often some one proclaims there is nothing wrong with brain-picking in this sense, it certainly is a basically immoral practice and should weigh heavily on the business conscience. Vendors are attempting to earn their living by selling ideas as part of a package. We pay advertising concerns, business consultants, public relations people and other "idea men" for the product of their brains. Why shouldn't we pay the printer who comes up with a clever and highly practical method of doing something which we haven't thought of ourselves? We have no more right to appropriate his



Many companies in effect "steal" ideas from their vendors. After a supplier has spent time, money and talent developing a new idea or solving a problem to help a prospective buyer, the buyer all too frequently says, "thanks a lot," uses the idea and gives the order to another supplier who contributed nothing but whose price is a little lower.

creative brainchild without remuneration, than we would have to throw away our advertising agency bills unpaid.

The blunt fact is this. When we ask for creative help, we have to pay for it. We are obligated to do so. If we shirk this obligation, we are behaving in a manner scarcely befitting a reputable company. The larger a company is, the more it should be aware of this and the more zealously it should guard its reputation for fair-dealing. But every one, large or small, should fulfill this obligation. To look at it another way, since we all sell a product or service ourselves, would we care to be treated in such an unfair fashion by one of our customers? It's hardly likely—and after all, the first creed of every buyer should be "treat every vendor as a potential customer."

Granted that we should pay for service in some way—just where and how do we set a dollar limit? For the occasion will certainly arise when a vendor, knowing his ideas will be used, will come up with an exorbitant price. How do we meet this situation?

Unfortunately, this situation is almost at an irreparable stage when it reaches that point. The vendor should have been notified to this effect when he came in with his idea: "All right. We'll consider your suggestion. We might even use it. But we wish to make this clear at the outset. Your price must be reasonable. We're going to get competitive bids. We feel that if your idea has merit and we use it, it also has a price. We will appraise its value and in comparing your bid against the others, we'll make an allowance of approximately that much. If your price is within that broad range, you'll get the order. If not, you won't, but you will be paid for your efforts if we use the idea without giving you the order."

There are other ways of dealing with the problem. Some companies believe in placing the first order with the printer when they adopt his ideas, regardless of price. Others allow him to receive the first two orders, on the same basis.

Some companies affix an arbitrary value of, say, 5%, to this

(Please turn to page 204)

**"Management is well aware of the part our purchasing**



P.A. Harold Martin: "The important thing is to have the information you need when you need it."



"I always know just what still has to come in on each job. Everything is broken down by job, so there won't be any mistakes."

# High Pressure Purchasing in a Three-Man Department

*The problem that faces Taylor-Winfield Corp.'s purchasing department is this: a small staff, relatively high purchasing volume—and everything is needed "yesterday." Here's how they meet this purchasing challenge.*

By Leonard Sloane

EVERY FRIDAY AFTERNOON, Harold Martin, purchasing agent for the Taylor-Winfield Corporation, Warren, Ohio, goes to a meeting.

Sitting alongside him are the machine shop superintendent, production superintendent, assembly control superintendent and chief engineer. During these meetings in the works manager's office, Mr. Martin learns what's in store for him during the next few weeks.

For here he is informed about new orders the company has received for its welding equipment and the delivery dates promised to customers. Basically, Mr. Martin's purchasing problem is this: to handle a heavy workload (sales volume last year was \$10.5 million) with a small staff (a buyer and a secretary) and make most of his purchases on extremely short notice.

For instance, he may be told that five arc-welding machines must be delivered to a customer in eight weeks. All the necessary

## system has played . . ."



**"Our system has several definite advantages. For a small department like ours it means we can do our job with a minimum of confusion."**

production material has to be in the plant within four weeks for assembly and machining. There may be eight different jobs like this. Unless every purchase order is filled by that date, production cannot meet the delivery schedule.

### Keep on Top of the Job

To run his small-staff, high-volume purchasing department, Mr. Martin has to have a pretty good system to keep on top of each job. As he points out, "The important thing is to have the information you need when you need it. Half the battle is over if you consider each job on its own and regard it as a separate unit."

### Uses Simple System

Mr. Martin handles this complicated task with a relatively simple system. He keeps on his desk a "tickler" file on a ringed board. One copy of each open purchase order is posted under Taylor-Winfield's sales order number for ready reference. When the product is delivered

to the plant, the P.O. copy is removed from the follow-up file, leaving only pending orders remaining.

"When I go into the Friday meetings," he notes, "I always know just what still has to come in on each job. I may be working on 20 or 25 jobs at one time, but everything is broken down by individual jobs so there won't be any mistakes."

A new sales schedule is prepared each week by the production control and sales departments, listing all outstanding customer orders under the Taylor-Winfield sales order number and the customer's purchase order number. The customer's name, date of receipt of order and promised date of delivery are among the other items noted. Mr. Martin checks this schedule to make certain purchase orders for all these jobs are moving on schedule.

### Sales Orders Broken Down

Each new sales order at Taylor-Winfield is broken down into a

bill of material by the engineering department. This goes to production control, which issues requisitions for items not in stock. Sometimes half of a possible sixteen week cycle from customer's order to delivery date may be needed by engineering to work out the specifications. Then it's up to the P.A. to take it from there.

"Whenever I can, I try to get a temporary bill of material in advance for items we know will have to go into the job," says Mr. Martin. "That way I can at least get some of the goods on the way here before the big rush starts."

Mr. Martin tells of one recent case when he sent out purchase orders on equipment for a welding machine one day and began expediting the next. "The material had to be in yesterday," he explains.

### Small Department Expediting

"Our system of organization and expediting has several definite advantages," says Mr. Martin. "First, for a small department like ours, it means we can do our job with a minimum of confusion. We're also set up for quick action. If I get a call from the production superintendent asking about the status of materials for a particular job, I can just flip to the job and see at a glance exactly how much more is still on order."

"And it's also convenient for follow-up. If I'm expediting a job for a certain welding machine, all the suppliers involved are right in the same place and I don't have to go fishing all over the place to find them."

Mr. Martin believes in keeping inventories low. He generally orders material—other than MRO items—only in the quantity needed for the particular job.

"We try to use everything we have before we buy a nickel's worth because so much of it becomes obsolete," he says. "But we will make large quantity buys if usage justifies it."

Mr. Martin comments, "management is well aware of the part our purchasing system has played in the effectiveness of our company. We've all been paid pretty well over the last few years—that's a good sign, isn't it?"

*If purchasing is to keep pace with the growth of a small company,  
it must do more than just issue more orders.  
It must progressively revise its entire business outlook.*

## Purchasing Meets Challenge

**V**OLUME of purchases of Buxton Inc., Agawam, Mass., has tripled in the last ten years. Buxton, which makes leather goods, has now grown to the point where it is no longer considered "small business" by the Department of Commerce's definition which assumes that a business is "small" if it has less than 500 employees. Buxton now has about 700 employees; its annual volume of purchases is over \$3,000,000.

Purchasing techniques have gradually changed at Buxton to keep pace with the company's growth. Ten years ago, there were just Purchasing Agent T. B. Gordon and a secretary; today there are five people including Gordon, two girls, and two buyers.

Growth has also required gradual refinement of procedures.

Formerly, purchasing could operate with fewer records; relations with other departments were less formal. Some functions—for example, receiving inspection—didn't even exist as separate activities.

### Procedures Refined

Growth has made it harder and harder to "play by ear" in determining purchase requirements. The nature of Buxton's business makes purchase planning extremely difficult. Sales are highly seasonal, depending a great deal on the gift-buying whims of Christmas shoppers. Changes in taste (for one type of leather wallet over another type, for example) can raise hob with materials planning. When they do occur, it's awfully easy to be over-

stocked with one material and short on another.

"The trouble is," Purchasing Agent Gordon declares, "that purchasing is always caught square in the middle. The production superintendent naturally wants to have plenty of stock on hand to prevent stock-outs and down time; the controller, on the other hand, is watching how much money we're tying up in inventory."

Formerly, purchasing more or less determined its own purchase requirements. It analyzed the manufacturing schedule and made purchases to meet requirements. The problem was changes in schedule; it was necessary to constantly juggle delivery dates, open-order balances, etc. to keep pace with changing demand for finished products.

It would be nice to say that purchasing has solved its problem of coping with changing demand for materials. Unfortunately, this is not the case. But Buxton purchasing has at least worked toward a solution.

### Old Idea, New Twist

"One big help in procedures has been the travelling requisition," Gordon explains. Most companies use travelling requisitions for non-production stock items, and so does Buxton. In this application, it saves a lot of paperwork since the form can both serve as a buy record and also eliminate a lot of requisition writing for repeat buys of an item. Buxton goes further than this, however. It uses the travelling requisition for production items and, as a result,



In ten years, Purchasing Agent Gordon has seen his department grow from two people to five.

# of Small Company Growth

has partly solved some of the problems resulting from schedule changes.

The travelling requisition is filed in the production control department along with the inventory card. As a result, there is now a convenient central record of open order commitments, requirements, etc. Production control does the detail work and purchasing does the buying. "Production control now figures requirements for us but we have the final say as to how much is bought," Gordon explains. "We occasionally adjust their figures because of discounts, lead times, etc."

## Other Changes

This procedure doesn't solve purchasing's basic problem of course—the difficulty of having material on-hand when needed in the face of changing demand for finished products. Actually there probably isn't any really effective solution to the problem; new procedures only make the problem easier to live with. Another idea purchasing has tried is getting suppliers to improve their lead time by producing ahead of schedule on Buxton purchase orders and then holding the material until Gordon asks them to ship it in. The success of this technique is, of course, limited by the willingness of suppliers to carry inventory for their customers—without collecting some sort of price premium.

One change Gordon made recently has definitely strengthened Buxton's procurement position, however. He now has a "material

DESCRIPTION SIZE SPECIFICATIONS													
ITEM	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
VENDORS NAME													
ADDRESS													
TERMS & PRICES													
1													
2													
3													
4													
REQUISITION													
DATE	QUANTITY	DATE WANTED	APPR NO.	DATE	BUYER	X	FOR	ROUTING	PUR. ORD NUMBER	QUANTITY	PRICE PER UNIT	DATE WANTED	
PURCHASE INFORMATION													
BUXTON, INC. PERMANENT REQUISITION													
FEB 1959 VISIBLE RECORD SALES CO. 8900 - 1000 BUR. TO NO. 226													

This traveling requisition is the key purchasing form at Buxton; it serves both as buy record and as authority to buy.

control" man reporting to him who carefully checks incoming hardware to be certain there are no discrepancies. This prevents delays on the line should there be defects and also improves supplier relations since vendors can be promptly informed if there are defects.

Gordon is the first to agree that future growth will undoubtedly make additional changes necessary. He's already investigating

a "visi-record" follow-up system for production parts. The transition from "small" business to "medium-sized" business is not an easy one; it involves constant balancing and re-balancing of the desirability of additional controls against their cost in terms of added overhead and longer lines of communication. Buxton purchasing seems to be making this transition successfully.

# A Sure Way to Gain Management Recognition

*Probably the easiest and quickest method for purchasing to get the recognition it needs and deserves is through effective communications—especially its report to top management. Here's the outline of the effective communications program one P.A. worked out which has helped make his department a vital force in his company.*

By C. D. Francisco

MANY BUYERS believe that purchasing agents do better in a small company because there are not so many people between the P.A. and the president. This isn't necessarily true. It still depends on the individual P.A.

Take the case of Jim Donahue, director of purchases for Allen Electric & Equipment Company of Kalamazoo, Michigan. For years, the purchasing agent at Allen reported to the factory manager. Today, Donahue reports to the president of the company. It isn't because the company buys so much—for its own manufacturing operations are well-integrated and it makes almost all of the components for its automotive testing equipment. The five thousand active production items purchased are mostly standard components. However, the real test of skill, ingenuity, and negotiating ability comes in the purchase of raw materials and MRO supplies.

## **Three Man Department**

Allen's purchasing department isn't large. Two buyers, the director of purchases and three girls handle all phases of the function. Donahue purchases all raw materials in three commodity categories. The two buyers handle mechanical and electrical items. Each man has a secretary to assist him with his work.

There are many reasons why Jim Donahue has been successful in bringing top management recognition to himself and his purchasing organization. Yet all of them can be summed up in one phrase: proficiency in communication.

It's one thing to tell the boss how great purchasing is. But it's much more important to show him. And Donahue has done exactly that—many times in many different ways.

One of the most impressive examples is his year-end report to the president. This report is designed to present purchasing's organizational structure, its strengths, its accomplishments, its goals and its objectives. The report is written concisely and uses charts that are easy to understand.

## **Inspiring Confidence**

Fourteen charts, which can be read in less than one minute, are used to illustrate significant purchasing activities for the past year. Prefacing the charts, are a few hard-hitting paragraphs summarizing changes, trends and objectives. Here are some excerpts:

- "... we have accomplished all the goals ..."
- "... we now have an aggressive staff ..."
- "... it is important in keep-

ing each buying group responsible in its entirety . . ."

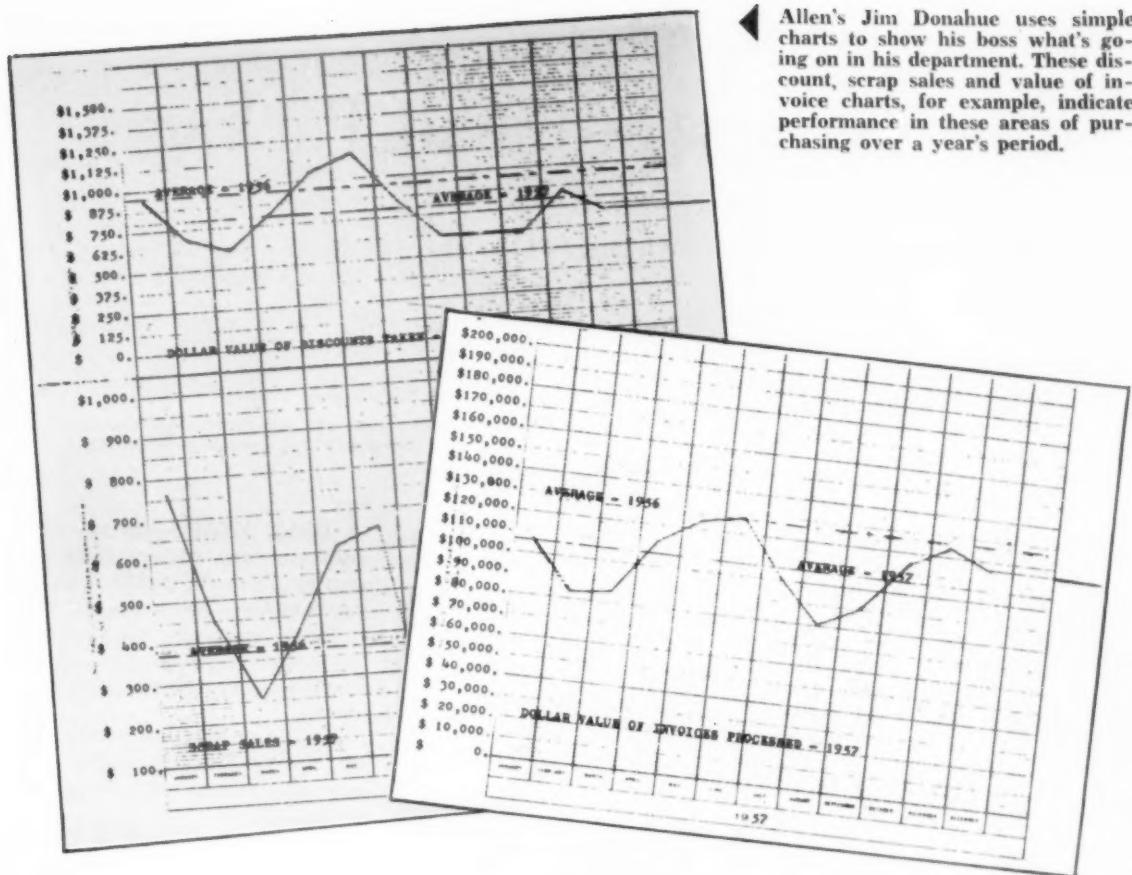
- "... the department has a degree of flexibility that has paid good dividends."
- "... our major goal will be product analysis and cost reduction."
- "... participation in the profit improvement program . . . should make 1958 a profitable year."
- "... a tremendous tool for us in maintaining a balanced inventory."
- "... Allen can be very proud of its suppliers."

The president can't help feeling the strength and reliability communicated in positive, sure-footed statements like these.

## **Well Defined Instructions**

Donahue's ability to express himself well is reflected in his buying organization too. Instructions are well-defined though brief. Buyers' authority is commensurate with their responsibility—so that they don't bother the P.A. with insignificant details. Files are not cluttered with superfluous papers. Meetings are few, brief and to the point.

Donahue hasn't hesitated to put across his ideas to his buyers on how and why things should be done. Allen uses a standard cost system, in which a variance report



is issued each month by the accounting department.

"The variance report," he says, "gives me an important method of measuring buyer performance."

Every time the variance report is issued, Donahue meets with his buyers to discuss engineering changes, price increases or whatever else may hike the variance percentage over the standards that have been set. The importance of the variance report is also reflected in other areas. For instance, sales prices are affected by variances in purchasing cost.

Donahue feels that poor communication is one of purchasing's biggest problems. Lack of communication leads to many misinterpretations and many errors. The ability to communicate effectively is not easy to acquire, but Director of Purchases Donahue has worked hard to improve his communications techniques and thereby improve the efficiency of his purchasing department.

Allen's Jim Donahue uses simple charts to show his boss what's going on in his department. These discount, scrap sales and value of invoice charts, for example, indicate performance in these areas of purchasing over a year's period.



P.A. Donahue (c.) and Buyer Hank Kimball try to make every communication to a vendor short, precise, and meaningful. Secretary Donna Wilkins takes notes as they think out a letter to a vendor.

# Big Savings in Small Packages

*An across-the-board packaging study saved \$125,000, reduced inventory, boosted sales appeal. Key factors: standardization, simplification, substitution.*

**By Walter F. Martin,** Purchasing Agent  
and

**Edwin B. Silveira,** Packaging Foreman  
Morse Twist Drill & Machine Co., New Bedford, Mass.



Two Morse Twist Drill cost cutters: Packaging Foreman Ed Silveira (left) and Purchasing Agent Walter Martin.



New packaging for drills is attractive, economical and serviceable. Standardization of labels has helped reduce costs substantially.

THREE YEARS ago we packaged our taps, cutters, saws, and similar products in 285 different paper boxes. Today we use 45.

Three years ago we packaged our drills and reamers in 356 different sized envelopes. Today we use 11.

For Morse this has meant:

- Close to \$125,000 saving in labor, materials and warehouse expense.
- An indicated \$35,000 to \$50,000 saving each year from now on.
- Less money tied up in inventory.
- Lower freight rates.
- Greater sales appeal through more attractive packages.

We've also been able to control our inventory better and take advantage of quantity buying.

## Save Money

All this is the result of the work of a packaging committee set up in 1955. The committee's purpose was simple: to see how our traditional methods of packaging could be improved to save money, better protect our products, simplify stocking for our distributors, and boost customer sales appeal. The make-up of the group reflected these aims: it consisted of representatives of the sales, advertising, packing and purchasing departments.

Since we packaged 13,000 regular items plus many specials in about 700 different packaging units, a careful, methodical plan of attack was needed. After preliminary studies, we decided on a four-stage program.



New-style folding cartons are not only more attractive but also facilitate standardization to a degree not previously achieved.

We had been using wooden boxes for shipping our products in bulk. They were obviously costly, heavy (which added to shipping costs) and space-consuming. We studied alternate methods, concentrating on corrugated containers.

After consulting with suppliers, we decided on a box that met all our requirements and applicable requirements of transportation companies. It is classified as Package 996 by the Freight Classification manual. The containers are made up of one box and two trays meeting in the center. They are constructed of a single wall, double faced "C" fluted corrugated burst tested for 350 lbs.

The containers are 75% cheaper than wooden boxes of the same size. Stored flat, they give us at least a 35% saving in storage space. Since they are considerably lighter we have also realized substantial tare savings. And the containers are stronger, neater, and easier to handle.

The switch to corrugated enabled us to reduce the number of box sizes needed from 12 to 4. This in turn permitted us to order in larger quantities and obtain better prices. We were also able to put our trade-cut and name on all four sides of the container—giving us free advertising and helping distributors and shippers to recognize our products.

The rather dull envelopes we were using for drills and reamers were ordered pre-stamped as to nomenclature, style, quantity and

size of the tool. Envelope sizes were ordered on the basis that no envelope should be more than one-quarter inch longer than the tool. So our inventory consisted of 72 different sizes and, because of the pre-stamped policy, 356 different units.

Our first move was to switch to an attractive tag-stock envelope, lithographed with our new trademark and colors of yellow and blue. A Columbian attachment increased closing efficiency in our plant. In addition, it permitted envelopes to be opened and contents inspected without harm to the package. (Distributors particularly were impressed with this feature). In our multiple unit package it enabled consumers to keep drills in an orderly manner until the supply was used up. A reminder printed on the yellow portion suggests re-ordering from a Morse distributor.

Careful analysis showed, to our amazement, that tools could be packaged in envelopes well over one-quarter inch longer without jeopardizing protection or appearance. We lost no time in standardizing on 11 sizes—instead of the previous 72.

We licked the pre-stamping problem by buying a small multi-press and installing it in our own plant. All 11 sizes are purchased unstamped now. Our new printing method is quick, simple and economical.

When production issues a work order to the shop, the packing department is notified of the quan-

ity, style and size of the tools. Packing makes weekly requests to the printing department for the necessary envelopes. The envelopes are printed with the full description. As a result the 356 different units we had been buying have been reduced to 11.

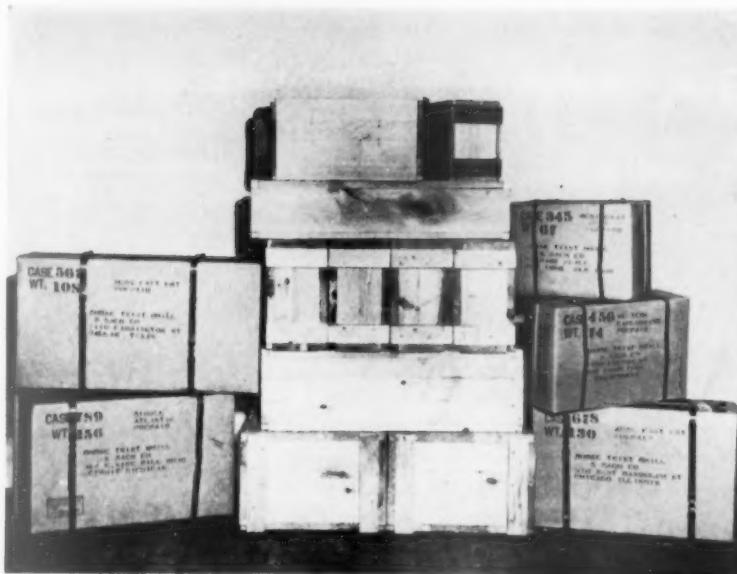
### Stage Three: Paper Boxes

Paper boxes used to package taps, cutters, saws, etc. had been bought with tool identification printed on them. Thus any one box could serve only one style or size tool. This meant we had to carry an inventory of 285 different box units. The telescope boxes, made of .025 chipboard, were not giving our tools the proper protection and often had to be taped together. (We were spending an average of \$600 a year on tape for this purpose alone.)

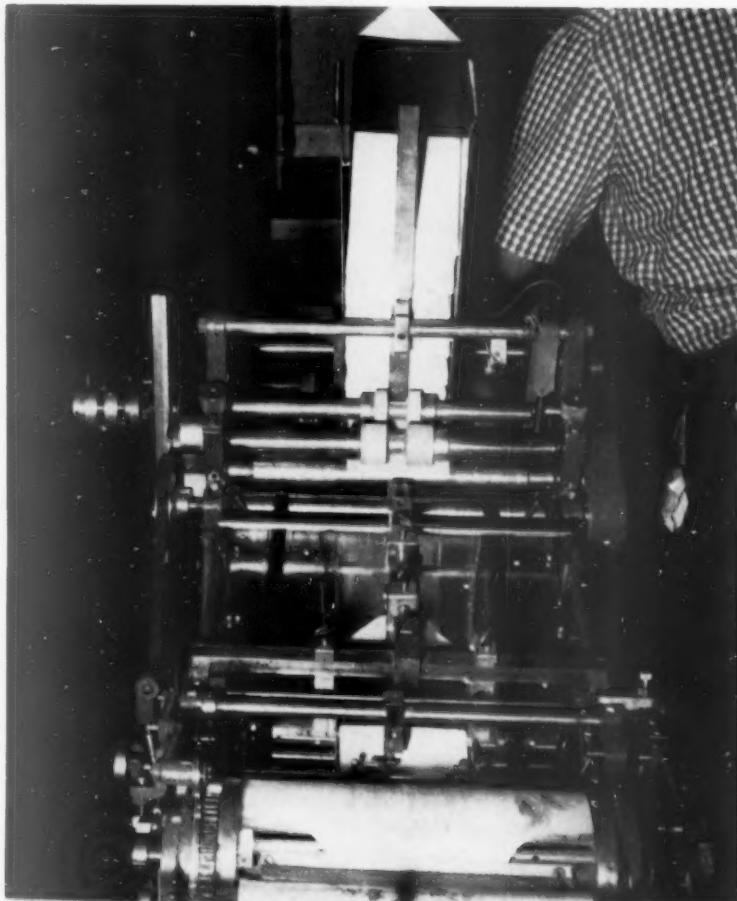
The committee began a search for a better box. Working with a supplier, we developed a box of special design and material (.025 kraft back pattern coated board). The box lithographed beautifully, and gave perfect protection to our sharp and heavy tools.

From there we reviewed all tool packages and decided that we should carry no boxes printed with the nomenclature of any specific tool. One box could then serve many purposes. Tool identification could be made with a label, using different inks to signify different types. The label is placed across the front of the box and also serves as a sealer.

This standardization program,



Costs were cut 75% and storage space needs reduced 35% by switching from wooden boxes (in center) to corrugated cartons.



This small press, used for printing envelopes and other work, has more than paid for itself at Morse Twist Drill.

cut the total number of types of boxes stocked from 285 units to 45. Beyond the obvious savings, we also obtained greater strength and protection, and increased the merchandising appeal of our packages.

#### Stage Four: Miscellaneous Packaging

From major items we went on to a number of smaller-volume packaging materials. In each one we were able to reach our goal: better appearance, larger purchase quantities, lower cost.

Some examples:

- Wrapping papers were bought in two colors and two weights. We have standardized on one paper of medium weight, bought with a blue finish overprinted in yellow with the Morse emblem.
- Labels had been ordered in various colors and sizes. We standardized on size, layout, and color. These changes, plus the new ordering quantity, enabled us to reduce label expenses by 50%.
- One jet bag, size #00, was substituted for mailer and cloth bags used in parcel post shipments. We eliminated three cloth bags and four size mailers.

#### Automatic Packaging

Many other projects have been completed or are being worked on now. One is the development of automatic packaging machines for very small drills carried in small tubes and those packaged in envelopes. The objectives in this case are to speed production, increase efficiency, and eliminate human error in counting—particularly with the very small drills.

The savings and improvements we've achieved through this program have been impressive. But just as valuable, in our opinion, is the lesson we've learned: don't accept the status quo in packaging or any other activity of your firm.

If you want to improve and want to save, there's really no end to the opportunities you can uncover with a little curiosity and a little hard work. No farsighted purchasing department—or any other department—can afford to pass up such a chance.

# Patent Licenses— How to Tell When They're Legal

*The law pertaining to patent licenses has a simple objective: protect patent rights while protecting the public against patent-created monopolies. This article will give the P.A. a better understanding of how patent laws affect his company.*

By Albert Woodruff Gray

HERE are three sides to the law's attitude towards patent licenses.

The first is that patents cannot be used for price fixing or the creation of monopolies. This is known as the doctrine of the misuse of patents. The basic principle of this doctrine is that public interest is the dominant consideration. This doctrine denies to the patentee the power to use his patent in such a way as to acquire a monopoly which is not plainly within the terms of the grant. The patentee has the power to refuse a license, but that does not enable him to enlarge the monopoly of the patent by attaching conditions to its use.

However, the doctrine of misuse of patents involves more than the contracting parties. It is an

equitable doctrine and the rule seems to be that he who asserts it must have "clean hands."

This "clean hands" aspect grew out of a Senate subcommittee report on February 7, 1957, which stated:

"The doctrine of the misuse of patents, has resulted in the destruction of patents in cases where other action could be more beneficial to the patent system as a whole. We should have a sound patent system and then the destruction of the patent grant should be earnestly avoided.

"The fundamental logic of the misuse doctrine finds support in well accepted judicial decisions. Carried too far, however, the logic departs from reality and effectually destroys the patent right. Virtually any practical use

of a patent in some measure influences the sale of products outside the scope of the patent."

## The Third Side

The courts agree, in general, with the subcommittee report. However, they feel its logic can in turn be carried too far.

Said one federal court: "The 'clean hands' maxim does not operate so as to repel all sinners from courts of equity. It does not apply to general iniquitous conduct unconnected with the transaction and in which the adverse litigant had no connection nor was otherwise interested. Neither does it take cognizance of all moral infirmities, since courts of equity are not primarily engaged in the moral reformation of the individual citizen.

"It therefore employs the 'clean hands' maxim only when a litigant appeals to it for either affirmative or defensive relief through the application of sound principles of justice. In such appeals equity will scrutinize his conduct with reference to the transaction as it affects his adversary and if it is fraudulent, illegal or unconscionable he will be dismissed and the doors of the court will be closed to him."

## Combination Patents

This attitude of the courts is referred to as the "unclean hands" doctrine. The doctrine was applied to a case involving the misuse of a patent, which lately came for review before the Supreme Court of the United States.

The case:

Stoker switches were an element of a combination patent of a heating system, but the switches were not patented. The owner of this combination patent made an exclusive license under which the licensee could market this patented heating system, but only when it was used with Stoker switches purchased from this licensee.

The decision:

Basing its conclusion on this doctrine of "unclean hands" the United States Supreme Court supported the decision of the lower court that this patent was used in the furtherance of a monopoly.



"The patent," said the lower court, "is being utilized to gain a monopoly beyond its legitimate scope and its sole purpose as used, is to suppress competition in the manufacture and sale of combustion stoker switches."

Of this method of implementing patent licenses by tie-in sales to the stifling of competition, the Supreme Court in its decision of this appeal, said:

"The case illustrates the evils of an expansion of the patent monopoly by private engagements. The patent in question embraces furnace assemblies which neither the patentee nor the licensee makes or vends.

"The struggle is not over a combination patent and the right to make or vend it. The contest is solely over unpatented wares which go into the patented product. The competition which is sought to be controlled is not competition in the sale of the patented assembly, but merely competition in the sale of unpatented thermostatic controls.

"The patent is employed to protect the market for a device on which no patent has been granted. But for the patent such restraint on trade would plainly run afoul of the antitrust laws. If the restraint is lawful because of the patent, the patent will have been expanded by the contract.

"That on which no patent could be obtained would be as effectively protected as if a patent had been issued. Private business would function as its own patent office and impose its own law upon its licensees. If would obtain by contract what letters patent alone may grant. Such a vast power to multiple monopolies would carve out exceptions to the antitrust laws which Congress has not sanctioned."

A court decision rendered half a century ago laid the groundwork for the present attitude of the courts.

The case:

On a mimeograph machine was the notice: "This machine is sold by A. B. Dick Company with the license restriction that it may be used only with stencil paper, ink and other supplies made by the A. B. Dick Company."

Suit was brought by the A. B.

Dick Company for infringement against a seller of ink to be used with this machine. The ink was not a product of the A. B. Dick Company.

The decision:

The United States Supreme Court held that both the purchaser and seller of the ink were not liable for an infringement of this patent in using supplies other than those of the patentee. The court said:

"A machine styled a rotary mimeograph was covered by a patent. The claims of the patent however, do not embrace the ink or other materials used in working the machine nor were they covered by independent patents. The owner of the patent sold one of the machines to a Miss Skou. The entire title was parted with. In other words there was no condition imposed affecting the title or uses to which the machine might be applied or the duration of the use.

"Upon the machine however, was inscribed a notice, styled a license restriction, reciting that the machine 'may be used only with stencil paper, ink and other supplies made by the A. B. Dick Company, Chicago, U.S.A.' The Henry Company, dealers in ink, sold to Miss Skou for use in working her machine, ink not made by the Dick Company.

"The court now decides that the use of such ink by Miss Skou would have been 'a use of the

machine in a prohibited way' and would have rendered her 'liable to an action under the patent law for infringement,' and that the seller of the ink was liable as an infringer of the patent on the machine because of the aiding and abetting a proposed infringing use.

"This interpretation of the law would permit tie-in sales. Take a patentee selling a patented engine. He would have the right by contract to bring under the patent laws all contracts for coal or electric energy used to afford power to work the machine or even the lubricants employed in its operation.

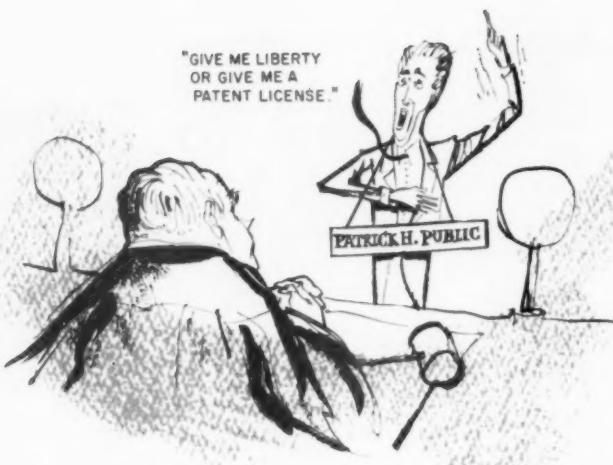
"Take a patented carpenter's plane. The power now exists in the patentee by contract to validly confine the carpenter purchasing one of the planes to the use of lumber sawed from trees grown on the land of a particular person, or sawed by a particular mill.

"Take a patented cooking utensil. The patentee could bind by contract one who buys the utensil to use in connection with it no other food supply but that sold or made by the patentee."

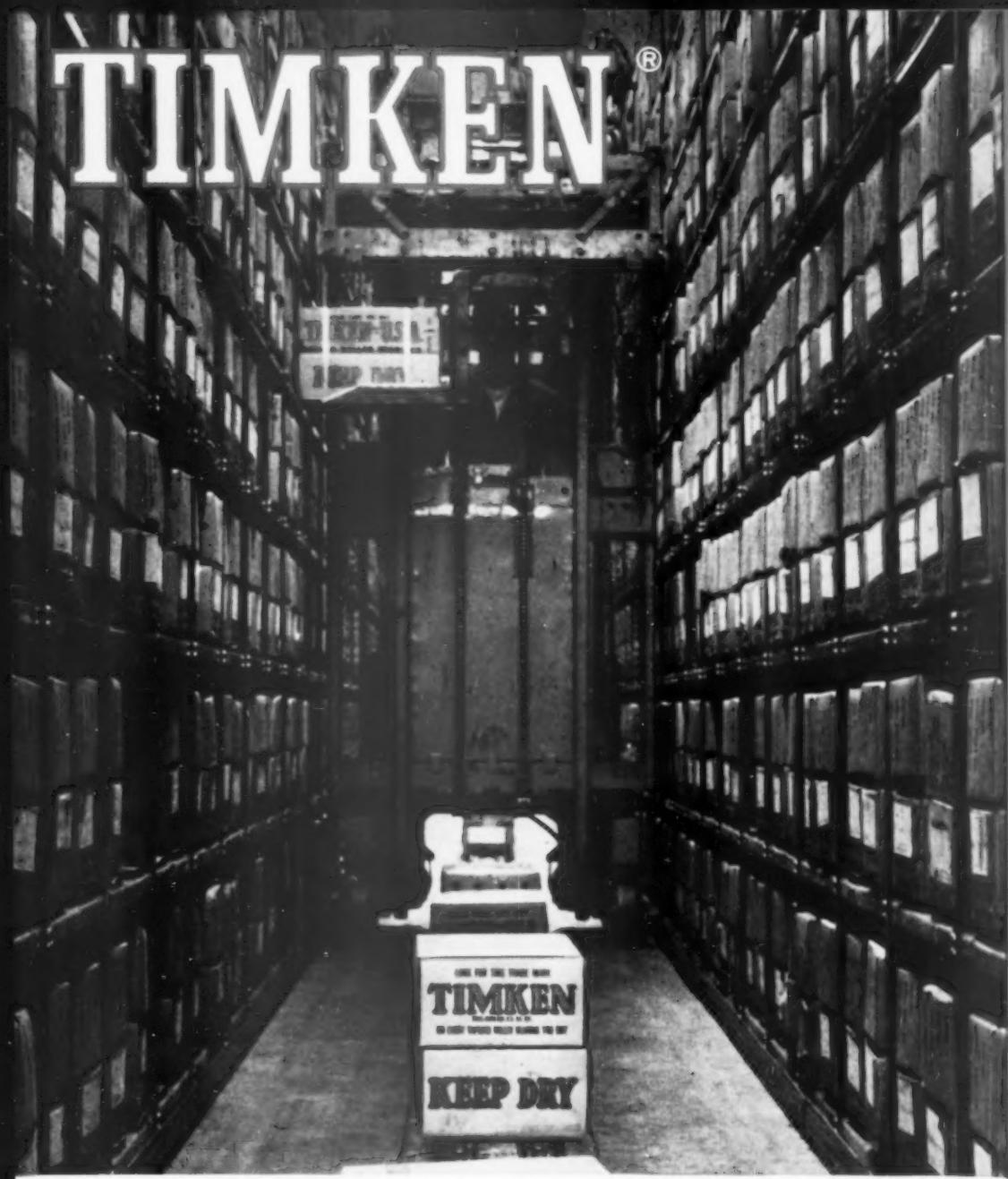
#### Clayton Act

Shortly after this, Congress passed the Clayton Act. This act made illegal either sales, or contracts for sale, where the purchaser could not use or deal in

(Please turn to page 208)



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years

### Can You Use Ultrasonic Cleaning?

**B**EST way to determine if you can profitably use ultrasonic cleaning is to know what it is, and when, where, and how it's used.

**What ultrasonic cleaning is.** Ultrasonic cleaning is the use of sound energy to remove surface "dirt" from parts.

**When to use ultrasonic cleaning.** Ultrasonic cleaning can be economically feasible when it eliminates or minimizes manual brushing, wiping, or handling of parts. If ordinary cleaning methods produce work in a satisfactory condition, there is obviously

no need for ultrasonics. Ask yourself this question: Can the article or part be cleaned to the standards required and in the volume required by conventional methods (vapor degreasing, emulsion cleaners, electrocleaning, etc.)? If the answer is no, ultrasonic cleaning probably would be economically feasible — particularly where a mechanized installation would lead to production economies by releasing operators for other work.

**Where ultrasonic cleaning is used.** Many metal fabricating and finishing plants use ultrasonic

cleaning. Among the parts cleaned: electrical and electronic parts, plastic and metal assemblies, optical glass, jewelry, and surgical instruments. Ultrasonic cleaning installations with conveyor line movement of work are often used for large volume cleaning operations.

**How ultrasonic cleaning works.** The removal of the surface dirt from parts submerged in an ultrasonic cleaning tank is due to the cavitation (vibration) occurring in the liquid. Cavitation is produced by sonic energy (sound waves) transmitted to the liquid by an ultrasonic transducer. Vibration of the liquid produces rapid changes of pressure that literally tear minute holes or cavities in the liquid, and then squeezes them shut. This action knocks the surface dirt off parts in the liquid.

Liquids have been cavitated by vibrational frequencies as low as 3 kilocycles per second and as high as 2.5 megacycles per second. Thus audible sonic vibrations as well as inaudible ("ultrasonic") may be used. (Ultrasonic generally refers to sound vibrations at frequencies beyond the limit of audibility of adult humans, 18 kc/s.)

#### Wide Range of Frequencies

Industrial ultrasonic cleaning equipment is available for operation at frequencies from as high as 1 megacycle/s (1000 kc/s) to as low as about 10 kc/s. Various frequency levels are preferred, for specific reasons. But all ultrasonic cleaning equipment must produce and maintain cavitation in a liquid medium, regardless of the frequency used.

Cavitation removes surface dirt or other contamination in any one of three ways: mechanical action, erosion—increasing a solvent action—or by accelerating a chemical attack. The mechanism, in many cases, may involve combinations of these actions. The net result is a transfer of dirt from the surface of the submerged part to the liquid in the tank.

For further information write to the Ultrasonic Manufacturers Association, PO Box 555, West Chester, Pa.



Components of gas meter, before and after ultrasonic cleaning. Note complete absence of sludge, soot, and grime on shiny parts (right) which just came out of the ultrasonic cleaning bath.

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*Between Philadelphia, Pa., and Trenton, N.J.*

For More Information Write No. 208 on Inquiry Card—Page 32

## Products

### **Low-Pressure Airflow Safety Switch**

Low-pressure Airflow safety switch "supervises" air flow on the fan suction or discharge ducts of paint finishing and other processing systems. Designed for flat mounting either in remote locations, or near equipment involved, the unit is quick-acting—in the case of ovens, shutting off gas burners instantly—if anything interferes with the desired flow of air from the fans. It also can be used to actuate alarms in plant or laboratory areas where controlled ventilation is imperative. Standard unit is manufactured for pressures of  $\frac{1}{4}$ -inch water gage. Can also be built special for any suction or pressure up to 3 inches water gage. Standard switch also can be mounted for either normally open, or normally closed action. R. C. Mahon Co., East 8-Mile Road, Detroit 34, Mich.

Write No. 18 on Inquiry Card—Page 32

### **Hand Tool Cuts Clamp Installation Time**

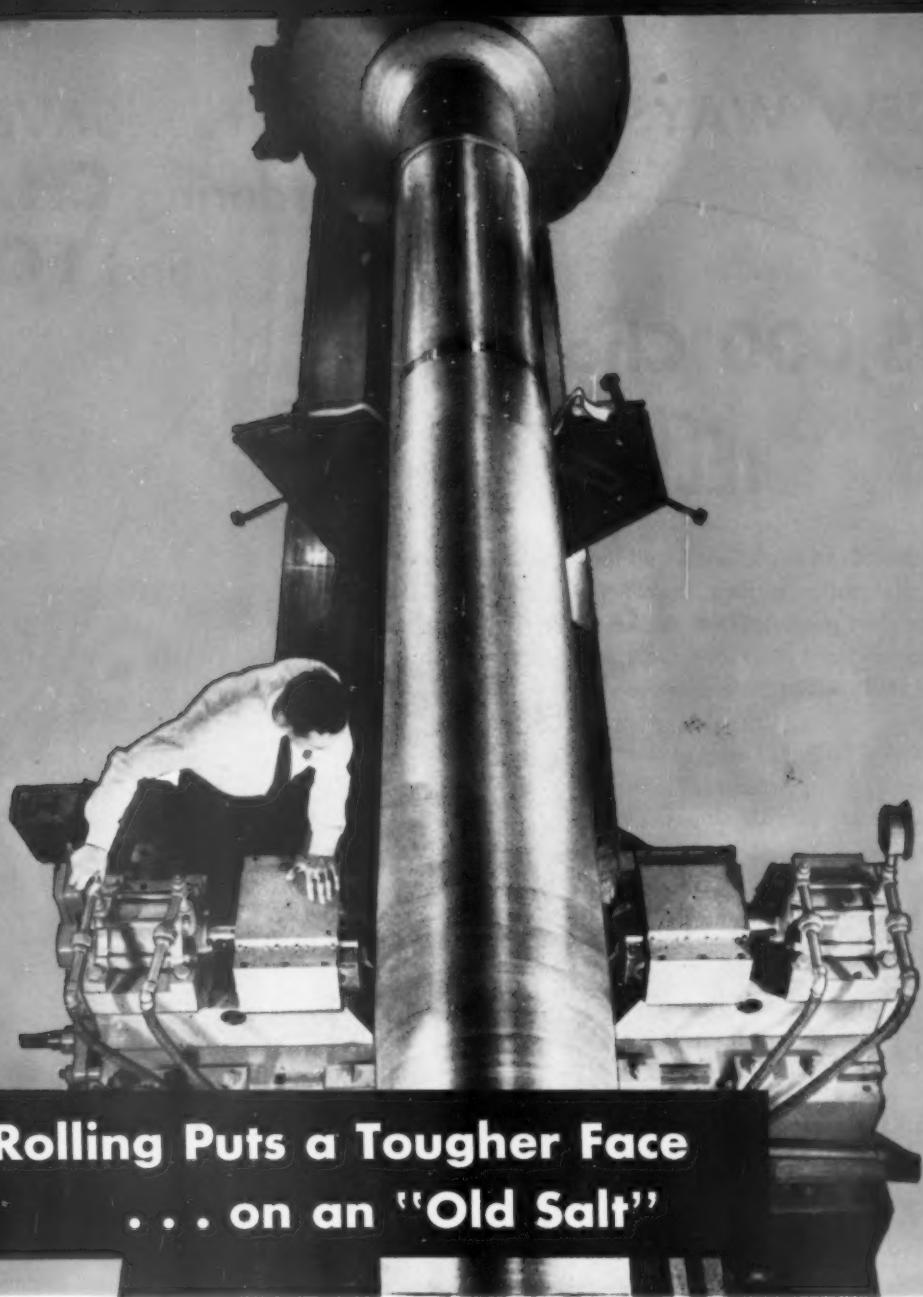


Plier secures bolt, while clamp is mechanically closed and locked in place. This frees both hands for attaching nut or for stacking additional clamps into lock position. Misalignment is prevented because proper closure is insured at all times. Worker fatigue is greatly reduced. Pliers are particularly useful in cramped quarters when space restricts the use of both hands. TA Mfg. Corp., 4607 Alger Street, Los Angeles, Calif.

Write No. 19 on Inquiry Card—Page 32

For More Information Write No. 209  
on Inquiry Card—Page 32—>

**PURCHASING**



## Cold Rolling Puts a Tougher Face ... on an "Old Salt"

To increase fatigue resistance, endurance limit and to fight the corrosive action of the sea, Erie Forge & Steel technicians cold roll ship's tail shafts as illustrated above. The life of the forged steel tail shaft is prolonged by cold rolling under the propeller and the after bearing. The surface toughness thus effected reduces fretting corrosion, minimizes pitting, costly failures and the hazard of propeller loss at sea.

Cold rolling is applied not only to new shafting but also for reconditioning existing ship's shafts, thus saving sizeable replacement costs in many instances.

Designed and built by Erie Forge & Steel engineers,

the machine cold rolls shafts of any length and up to 30 inches in diameter. Any desired pressure up to 37,000 pounds can be exerted by the hardened steel rollers on each side of the shaft.

The Society of Naval Architects and Marine Engineers recommends that all ship's propeller shafts be cold rolled as a safety measure. This cold rolling process is approved by The Bureau of Ships, United States Navy.

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## Now! Snail's pace to top speed...no jars, no jolts!

Entirely new! The only electric fork truck that provides smooth, "non-jerk" power-delivery under *all* working conditions.

On the all-new Clarklift Electric an infinitely variable speed control provides the *exact* torque necessary for different working conditions and assignments. On ramps, in congested areas, and particularly when inching or stacking . . . power is delivered with perfect regulation. Your driver has *complete* control of the travel speed of his

truck at all times, resulting in greater efficiency and safety than ever before possible.

A new upright, one lever for both lift and tilt, self-adjusting brakes, unmatched accessibility are just some of the new features. There are many, many more. Send today for a brochure giving full details. Simply write: New Electrics, Clark Equipment Co., Battle Creek, Mich.

**CLARK**  
EQUIPMENT

CLARKLIFT is a trademark of Clark Equipment Company

**TWIN-WELD HOSE  
CAN'T KINK  
OR CURL**

There's no wrestling with snarled hose lines when this Hewitt-Robins welding hose is on the job. It can't kink or curl because it's molded in *straight* sections by the exclusive H-R platen press process. Both oxygen and acetylene lines in a single integrated unit, yet each clearly color marked, means easier handling and moving, increased safety, longer wear, and time and money saved.

The patented construction of Twin-Weld hose increases flexibility, gives life-time adhesion between the two lines, eliminates coil set, and prevents any chance of leaks or ruptures between tube and cover. In-process inspection during all stages of manufacture results in the highest quality welding hose on today's market. To find out how H-R products and services can help you, consult your classified telephone directory for the nearest H-R representative, or contact Hewitt-Robins, Stamford, Connecticut.



**HEWITT-ROBINS**

CONVEYOR BELTING AND IDLERS...POWER TRANSMISSION DRIVES  
INDUSTRIAL HOSE...VIBRATING CONVEYORS, SCREENS & SHAKEOUTS

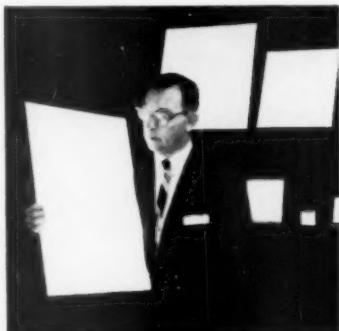
H-R Product Manufacturing Plants in Buffalo, N. Y. • Chicago, Ill. • King of Prussia, Pa. • Passaic, N. J.  
Amsterdam, Holland • Johannesburg, South Africa • London, England • Montreal, Canada • Paris, France

For More Information Write No. 212 on Inquiry Card—Page 32

102

## Products

### Man's Newest Light Source



A line of electroluminescent "light bulbs" is available for commercial applications. These flat "bulbs" are man's newest light source. Called Rayescent lamps, the panels use no filaments, gas or metallic vapors. They produce practically no heat, consume a negligible amount of electric current, and produce a completely diffused light with no special fixtures or baffles required. Basically, the lamp consists of a sheet of glass with an electrical conductive coating and a phosphor layer. When voltage is applied, light is produced by the phosphor. The lamps are available in standard sizes ranging from 2 inches by 2 inches to 24 inches by 24 inches, in green, blue, and yellow. The greatest brightness is obtained from green lamps.

Low power consumption is an important feature. A standard 4" x 4" lamp, for example, consumes only .07 watt at 120-volts, 60 cycles. The thin, flat shape of the lamps makes them ideally suited for many difficult lighting applications. Special lamps are being made for use as dials and indicators, and scales and other markings are imprinted on the glass surface. Possible applications: elevator signals, lighted shelves, luminous baseboards, decorative lighting, signs, switch-plates, darkroom lights, safety lights, thermometers, clock and radio faces, instrument faces and automotive interior lighting. Lamp Div., Westinghouse Electric Corp., Bloomfield, N. J.

Write No. 20 on Inquiry Card—Page 32

For More Information Write No. 213  
on Inquiry Card—Page 32—

PURCHASING

## 36 Sources

### CONVENIENTLY LOCATED FOR FAST SERVICE

AMERICAN SCREW COMPANY Williamantic, Connecticut

ANCHOR FASTENERS, INC. Cleveland 5, Ohio

THE BLAKE & JOHNSON CO. Waterbury 20, Connecticut

BUTCHER & HART MFG. CO. Waterville 14, Connecticut

CENTRAL SCREW COMPANY Altoona, Pennsylvania

CONTINENTAL SCREW CO. Chicago 9, Illinois

ECONOMY SCREW CORP. Keene, New Hampshire

ELCO TOOL & SCREW CORPORATION Frankfort, Kentucky

FEDERAL SCREW WORKS Detroit 10, Michigan

GREAT LAKES SCREW CORPORATION Chicago 27, Illinois

H. M. HARPER CO. Morton Grove, Illinois

HARVEY HUBBELL, INC. Bridgeport 2, Connecticut

INDIANA METAL PRODUCTS DIVISION, TEXTRON INC. Rochester, Indiana

KENTUCKY SCREW CO. Louisville, Kentucky

LAKE ERIE SCREW CORP. Cleveland 7, Ohio

THE LAMSON & SESSIONS CO. Cleveland 2, Ohio

MIDLAND SCREW CORP. Chicago 32, Illinois

NATIONAL LOCK COMPANY Rockford, Illinois

THE NATIONAL SCREW & MFG. CO. Cleveland 4, Ohio

PARKER-KALON DIVISION, GENERAL AMERICAN TRANSPORTATION CORP. Los Angeles 22, California

PHEOLL MANUFACTURING CO. Clifton, New Jersey

PITTSBURGH SCREW & BOLT CORP. Chicago 50, Illinois

PROGRESSIVE MANUFACTURING CO., DIV. OF TORRINGTON CO. Pittsburgh 33, Pennsylvania

RELIANCE DIVISION, EATON MANUFACTURING CO. Torrington, Connecticut

REPUBLIC STEEL CORP., BOLT & NUT DIVISION Massillon, Ohio

RING SCREW WORKS Van Dyke, Michigan

ROCKFORD SCREW PRODUCTS CO. Rockford, Illinois

RUSSELL, BURDSALL & WARD BOLT & NUT CO. Port Chester, New York

SCOVILL MANUFACTURING CO. Los Angeles 33, California

WATERVILLE DIVISION Rock Falls, Illinois

SEMS DIVISION, TEXTRON INC. Waterville 48, Connecticut

Rockford, Illinois



For best fastening performance, specify **SHAKEPROOF®** Lock Washers when ordering Sems. They're specially engineered for mechanical pre-assembly.

SHAKEPROOF DIVISION, ILLINOIS TOOL WORKS Elgin, Illinois

SOUTHBURG HARDWARE MFG. CO. DIV. OF PITTSBURGH SCREW & BOLT CORP. Southington, Connecticut

THOMPSON-BREMER & CO. Chicago 22, Illinois

TRIPLEX SCREW CO. Cleveland 9, Ohio

UNITED SCREW & BOLT CORP. Chicago 8, Illinois

WALES-BEECH CORP. Rockford, Illinois

For information on SEMS sources in Canada contact:

CANADA ILLINOIS TOOLS LTD. SHAKEPROOF FASTEX DIVISION

Toronto, Ont., Canada

# mechanically pre-assembled fasteners reduce handling costs

Sems eliminate handling separate washers and screws, save time, speed production. Pre-assembly guarantees the washer will not be forgotten or mis-matched to the screw, improves product quality with a better fastening. Ideally suited for automatic hopper-fed driving, pre-assembled Sems is a first step in automation. The source nearest you supplies Sems in a wide variety of styles and sizes.

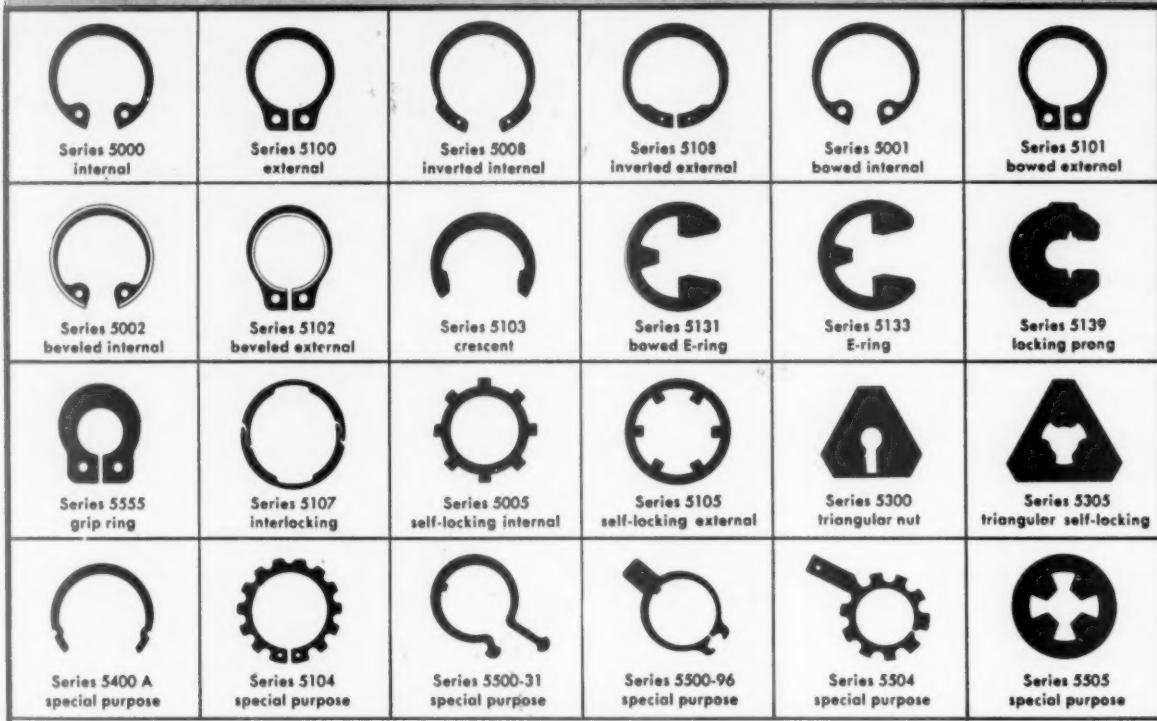
# Sems

pre-assembled screw and lock washer

SEMS is a development of Illinois Tool Works, Chicago



# 6 Reasons why Waldes Truarc is your one dependable source for retaining rings



**WHATEVER YOU MAKE, THERE'S A WALDES TRUARC RING  
DESIGNED TO SAVE YOU MATERIAL, MACHINING AND LABOR COSTS**

**COMPLETE SELECTION**—All your retaining ring requirements can be obtained from this one dependable source. Waldes Truarc rings are available in 36 functionally different types... as many as 97 standard sizes within a ring type... 5 metal specifications and 14 different finishes.

**MANUFACTURING EXPERIENCE**—Waldes Truarc pioneered precision retaining rings. Truarc Rings have been standardized by leading U. S. industries and Government agencies. Waldes Kohinoor, Inc. has over 50-years experience in inventing, developing, and manufacturing precision fasteners.

**QUALITY CONTROL**—Every step in the manufacture of Waldes Truarc rings—from engineering and raw materials through to the finished product—is carefully controlled and tested in our own modern plant. Truarc standards are the highest in the industry—your guarantee of consistent, uniform quality.

**DESIGN SERVICE**—For help in designing new products or in refining present designs, send your blueprints to Waldes Truarc engineers. Whether your product requires standard or custom-designed rings, these experts are ready to help you. They will also design special assembly jigs and fixtures—or even help you set up an automation assembly operation.

**FIELD ENGINEERING SERVICE**—More than 30 engineering-minded factory representatives and 700 field men are available to you on call! This engineering service can prove invaluable in helping you to solve design, assembly and production problems.

**DISTRIBUTION**—Truarc rings are available from leading OEM Distributors in 90 stocking points throughout the United States and Canada.



**WALDES TRUARC®** **RETAINING RINGS**  
WALDES KOHINOOR, INC.  
LONG ISLAND CITY 1, NEW YORK

WALDES TRUARC Retaining Rings, Grooving Tools, Pliers, Applicators and Dispensers are protected by one or more of the following U. S. Patents: 2,382,948; 2,411,426; 2,411,761; 2,416,852; 2,420,921; 2,428,341; 2,439,785; 2,441,846; 2,455,165; 2,483,379; 2,483,380; 2,483,383; 2,487,802; 2,487,803; 2,491,306; 2,491,310; 2,509,081; 2,544,631; 2,546,616; 2,547,263; 2,558,704; 2,574,034; 2,577,319; 2,595,787, and other U. S. Patents pending. Equal patent protection established in foreign countries.

# Which of these 3 products and services can you use from BECCO?

## New Cold Caustic Bleach Process

Looking for a way to use greater amounts of low-cost, more plentiful pulp—without capital investment for bleach equipment? Then let a Becco Sales Engineer show you our new technique\* which allows you to bleach in the same equipment regularly used for the manufacture of cold caustic pulp.

In this new process, peroxide bleach liquor is added at the Bauer Refiner, and bleaching occurs during the refining operation. Bleach response depends on refiner densities.

Up to 20 points brightness increase has been obtained in commercial operations to date, and with no additional steam costs, no holding time, and no excessive chemical costs.

Becco can assist you immediately in setting up a production run and evaluating results. First step: use the coupon to let us know you're interested.

\*—Patent Pending



### "Enclosing \$1.00— Send Patent License"

Well, perhaps there's a little more to your gaining use of Becco patents than just mailing your dollar in, but not much more. And certainly, no more money. The \$1.00 really does cover it.

Becco has lots of patents, granted as a result of innovations in the use of Hydrogen Peroxide and other Peroxygen chemicals developed in Becco's Research Laboratories. But they don't do us a whole lot of good locked tightly in our safe. So, we long ago adopted the following policy:

If one of our patents can help you, we'll be glad to license the rights to you *perpetually*, for just one dollar. You get a nice certificate, incidentally, to cover the legalities, but more important—you also get free our complete engineering help in setting up your process, handling the material, maintenance, etc., etc.

What do we get? You as a customer—we hope—but there's no obligation on your part. Just seems to work out that way, though—when we know enough about a particular peroxygen to hold a patent on its use, chances are we've also learned enough to produce it purer than anyone else. You benefit from this; we do, too.

Use the coupon below to ask for a Sales Engineer—or our list of patents—that may help you solve an important problem.

## Problems in handling Hydrogen Peroxide



Becco's Four-Fold Engineering Service Program—offered free—includes:

1. Comprehensive survey of your facilities.
2. Specific proposal with recommendation of proved equipment and where it is obtainable.
3. Installation supervision by Becco.
4. Periodic inspection and permanent service.

Can you use this free Becco help, based on more years of experience with bulk handling of  $H_2O_2$  than any other manufacturer? Use the coupon to let us know.

# BECCO



BECCO CHEMICAL DIVISION, FMC  
Station B, Buffalo, New York

Dept. PM-H

Gentlemen:

Please have a Sales Engineer give me more information on Becco's Cold Caustic Bleach Process.

NAME \_\_\_\_\_

FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

ZONE \_\_\_\_\_ STATE \_\_\_\_\_

# BECCO



BECCO CHEMICAL DIVISION, FMC  
Station B, Buffalo, New York

Dept. PM-F

Gentlemen:

Please send your list of patents available on the use of

- Hydrogen Peroxide
- Peroxygen Chemicals
- Persulfate Chemicals

Please have a Sales Engineer call.

NAME \_\_\_\_\_

FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

ZONE \_\_\_\_\_ STATE \_\_\_\_\_

# BECCO



BECCO CHEMICAL DIVISION, FMC  
Station B, Buffalo, New York

Dept. PM-B

Gentlemen:

Please tell me more about your Four-Fold Engineering Service.

NAME \_\_\_\_\_

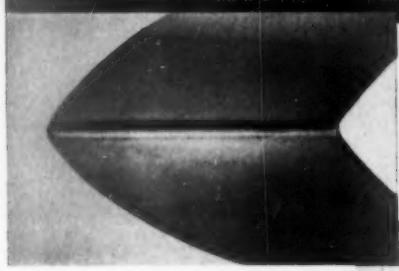
FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

ZONE \_\_\_\_\_ STATE \_\_\_\_\_

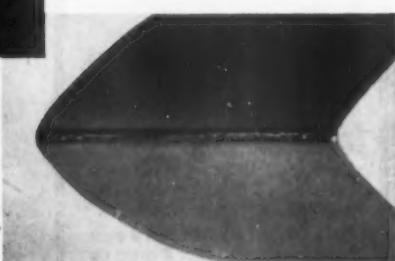
# Precision-Annealing Gives WRM PHOSPHOR BRONZE extra stamina and formability



Close up shows how WRM precision-annealed spring temper phosphor bronze withstands severe bend.

Close up of ordinary-annealed spring temper phosphor bronze shows surface beginning to rupture at the bend.

These photos will give you an idea of how Waterbury Rolling Mills *precision-annealed* phosphor bronze can improve your production.



By a closely-controlled anneal prior to finishing, Waterbury produces spring-temper phosphor bronze with up to 3 times normal formability (elongation) plus higher fatigue life. The finer, more uniform grain structure produced by this process also improves surface finish and insures consistent production quality.

Over 50 years of specialization enables WRM to produce phosphor bronze with special ability for your application.

Send for this new, free, 60-page catalog of WRM facilities, abilities and metal specifications.



## WATERBURY ROLLING MILLS, Inc.

**Main Offices and Plant:**  
Waterbury, Conn. Tel. Plaza 4-5131  

- In N. Y. C.—Murray Hill 7-1246
- In Phila.—Adams 3-1869
- In Chicago—Sheldrake 3-0100
- In Detroit—DUnkirk 6-3444



WR-21

ALSO NICKEL-SILVER & OTHER COPPER ALLOYS  
For More Information Write No. 216 on Inquiry Card—Page 32

## Products

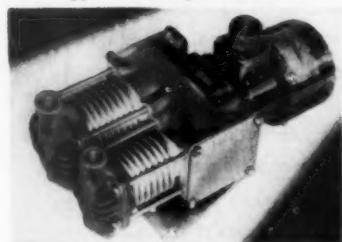
### Conveyor With High Working Angle



A 12 foot conveyor with a working angle up to 60° is used here for stacking cartons 16 foot high. Designated the Steep-Grade, this conveyor solves handling problems in tight spaces and narrow aisles. Equipped with swiveling casters and electric drive. New London Engineering Co., Dept. SG, New London, Wisconsin.

Write No. 21 on Inquiry Card—Page 32

### Compressor for High Temperatures



Compact, two-stage motor driven air pump for use in airborne radar systems, ground support, electronic test equipment, etc. Pump has a continuous duty cycle and is qualified to customer specification for 1,000 hours minimum life. Operation is entirely oil-free, and requires no lubrication (grease packed bearing construction). The operating temperature range is minus 65°F to plus 200°F. Total weight is only 8.75 pounds. Motor is fully enclosed, 1/4 h.p., 400 cycle, 3 phase, 208 volts and is fan cooled. Great Lakes Manufacturing Corporation, 4223 Monticello Boulevard, Cleveland 21, Ohio.

Write No. 22 on Inquiry Card—Page 32



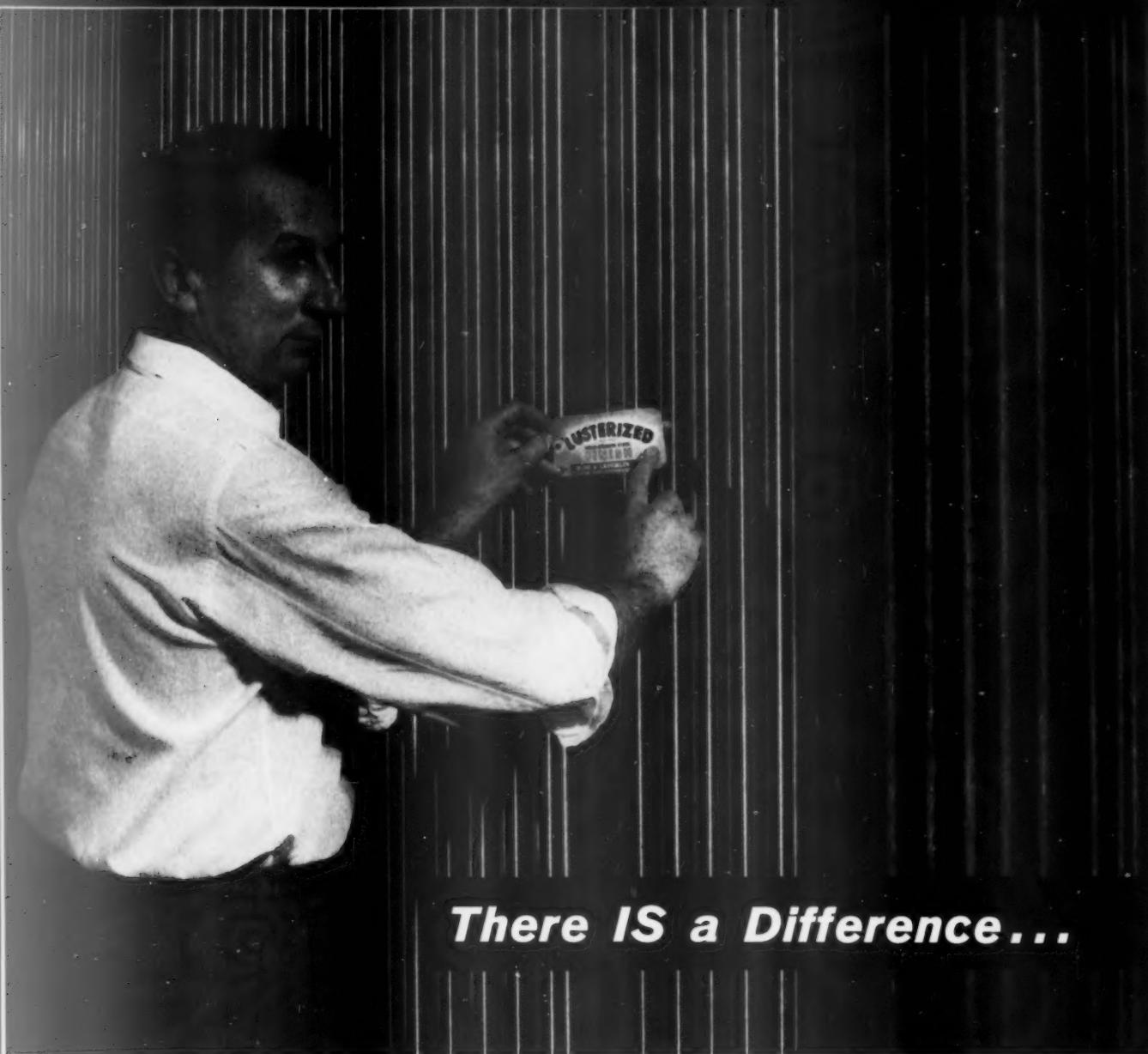
It's easy and economical to add punch to your packages, color to your cartons with appealing Safetex Printed Tape. For very few extra pennies, your *exclusive* Safetex Printed Tape design can advertise your company or product at a low, low cost . . . discourage pilferage of shipments . . . be helpful in tracing lost shipments . . . make in-warehouse identification easier for your customers . . . be effective in color coding production runs. Appealing Safetex Printed Tape is available in one, two and three color printing. On any of 10 handsomely colored

stocks, in all popular widths and weights. For proof of Safetex Printed Tape quality and popularity, write for sample folder or call your Safetex distributor.

**SAFETEX PRINTED TAPE**



CENTRAL PAPER COMPANY  
MENASHA, WISCONSIN



***There IS a Difference...***

## ***...a BIG DIFFERENCE in Cold Drawn Bars***

Contrary to popular belief, all cold drawn bar steel is not alike. There is one big difference worthy of your specification—the Bliss & Laughlin difference.

Only B&L Lusterized® cold finished bars are different from all others. B&L bar steel is cleaner, brighter, easier to handle. The exclusive B&L cold finishing process (patent applied for) removes drawing oils, lime and processing grit, producing a smooth, gleaming bright surface without processing contaminants to slow your production. And B&L special protec-

tive oil keeps dirt, dust and other airborne contaminants from the Lusterized surface until you are ready to process the bars.

This big difference over other cold finished bar steel is another benefit developed from B&L research since 1891 to produce better cold finished bars.

You can see the difference. You can work the difference advantageously. Since you pay nothing extra for B&L Lusterized bars, it is always rewarding for you to specify "Bliss & Laughlin Lusterized."

*Originators of LUSTERIZED® Finish—The BIG DIFFERENCE in Cold Drawn Bar Steel*

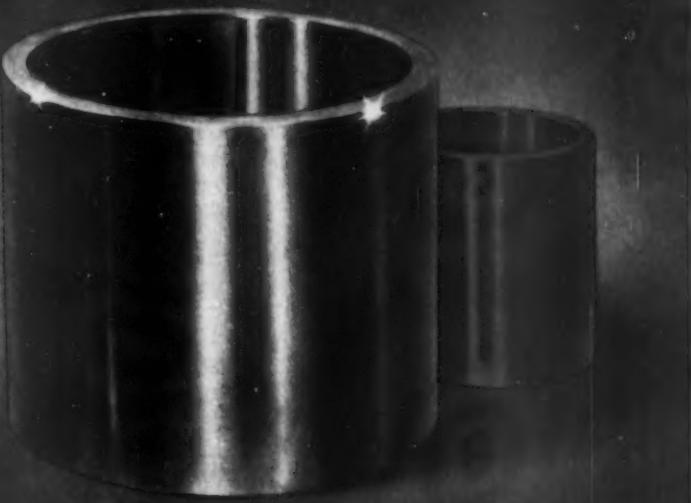
**BLISS & LAUGHLIN**

GENERAL OFFICES: Harvey, Ill. • PLANTS: Harvey, Detroit, Buffalo, Mansfield, Mass.

Specialists in  
Finish, Accuracy, \*  
Straightness, Strength  
and Machinability

introducing **NEW**  
**IRON OILITE 212 BEARINGS**

*"bronze"*  
*performance*  
*at far*  
*less cost*



The important difference between the porous bronze bearing (right) and the all-new Iron OILITE\* 212 Bearing (left) is cost. While both bearings give long, maintenance-free service, Iron Oilite 212 bearings now open the door to major savings for many equipment manufacturers.

Performance-proved in life tests and on actual products, Iron Oilite 212 bearings have a service life equal to porous bronze when used for products where corrosion is not a problem and mechanical strength requirements are within tolerable limits.

A high oil content — approximately 20% by volume — assures adequate lubrication for the lifetime of many end products. In addition, a unique built-in service factor gives Iron Oilite 212 bearings extraordinary protection against temporary overloads. They perform best when carrying medium to heavy loads at relatively low speeds and readily equal the performance of bronze at the high speeds required by home appliances, fractional horsepower motors, power tools, light machinery and other products.

**It's another Amplex first . . .** a typical example of how Amplex serves a growing number of original equipment manufacturers with "better quality at lowest cost". Use Amplex's extensive research and engineering facilities to your own advantage. Savings can be impressive if you require bearings in volume.

*free sample*

of IRON OILITE 212 Bearing 1" ID x 1 $\frac{1}{4}$ " OD x 1" Length and full information on request. Consult the Oilite engineer in your area. Find him in the Yellow Pages under "bearings" or write direct to Amplex. Address Dept. F-2.

COMPARISON OF TYPICAL PHYSICAL PROPERTIES		
	Iron Oilite 212	Oilite Bronze
Porosity, % oil by volume	18 - 23	18 - 23
Ultimate Tensile Strength, (psi)	10,000	18,000
Compressive Yield Point, (psi)	9,500	20,000
Rockwell Hardness	RH - 35	RE - 65
Specific Gravity	6.1 - 6.5	6.4 - 6.7

\* REGISTERED TRADEMARK  
ONLY CHRYSLER MAKES OILITE



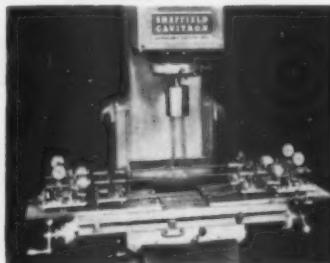
*the most trusted name in powder metallurgy!*

**AMPLEX DIVISION**

CHRYSLER CORPORATION, DETROIT 31, MICHIGAN  
 SELF-LUBRICATING BEARINGS • PRECISION PARTS • METAL FILTERS • FRICTION UNITS

## Products and Ideas

### Extension-Type Tooling Permits Multiple Station Ultrasonic Machining



The four standard extension-type tooling units mounted to the table of this ultrasonic machine tool permit up to four machining operations to be carried on simultaneously—(each station can also be operated independently). As many as eight machining stations have been operated from a single transducer. Tooling units can be mounted back to back, opposite and side-by-side as shown, criss-cross, or on top of each other. Each workpiece station has its own feeding device, and depth of cut is indicated in .0001" increments.

The horizontal cutting position makes toolholder change easy and fast and workpiece location highly accurate.

Standard tooling units as illustrated for machining germanium, silicon, ceramic, and ferrite are available for off-the-shelf delivery. Each unit accommodates a cutting tool up to 1-1/2" diameter and will machine workpieces to 2" to a depth of .050".

Extension-type tooling is designed to be used with existing as well as new Sheffield-Cavitron machines. The Sheffield Corporation, Dayton 1, Ohio.

**Write No. 23 on Inquiry Card—Page 32**

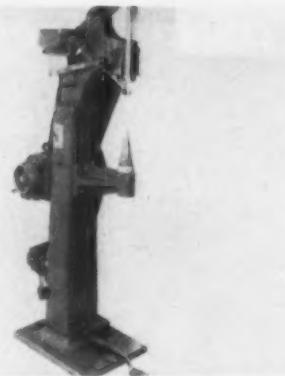
### Ion Exchange Resin

Ion exchange resin demonstrates high selectivity for heavy metal cations. Called Dowex Chelating Resin A-1, it is the first chelating resin to be made commercially available. Can be used in removing traces of heavy metals from a wide range of product

streams, and in separating various heavy metals. Will remove traces of heavy metals such as iron, copper, or zinc from concentrated solutions of alkali and alkaline earth metal salts. In addition, alkaline earth cations may be removed from concentrated solutions of alkali metal cations. Dow Chemical Co., Midland, Mich.

**Write No. 24 on Inquiry Card—Page 32**

### Riveting Machine Sets Long Tubular Rivets



Model 95DP riveting machine maintains trouble-free feed and control of long rivets and provides maximum work clearance. With a 10" throat, blade hopper and a choice of 4-1/4" or 5-13/16" stroke, the machine will automatically feed and set semi-tubular and full tubular rivets up to .260" body diameter and 2-5/8" length. Its standard center-hung clamping type jaws are equipped with rigid arms and secondary leaf springs to control and hold the rivet securely. A standard pair of jaws will handle any .260" diameter rivet from 1" to 3" in length regardless of head diameter. Because the clamping action does not take place until the riveting cycle has been actuated, the rivet hangs free so that it can be pushed aside when added clearance is needed. The short 1" length of the jaws increases the work clearance area and provides more access to the operator in loading and unloading. Tubular Rivet and Stud Co., Quincy, Mass.

**Write No. 25 on Inquiry Card—Page 32**

For More Information Write No. 221

← on Inquiry Card—Page 32 →

### Cut costs, speed work with B&D accessories



COMPLETE IMPACT  
WRENCH KITS



RIGHT ANGLE  
HEADS



CHUCKS

The reason: you're using B&D accessories . . . sockets, chucks, right angle heads . . . to get the most out of your tool.

Call your local distributor today for the accessory you need. He stocks 'em all.

INSIST ON THE BEST

**Black & Decker**  
ACCESSORIES DESIGNED FOR THE TOOL



## B&D No. 300 Impact Wrench slashes maintenance down-time!



**LONGER LIFE:** torque tests show it has higher performance, cooler running, longer life than any other.



**MORE POWER PER POUND:** this light-weight (only 13.5 lbs.) tool really packs a powerful punch!



**EASIER HANDLING:** no nose or tail heaviness. No starting torque twist. All-position auxiliary handle.



**NO. 100 IMPACT WRENCH:** the rugged wrench for smaller applications; hits max. torque in 6 seconds!

### Mail coupon today for free demonstration!

Now, Black & Decker takes the back-break out of moving equipment, installing new tools, making structural changes and many other like jobs! The No. 300 Heavy-Duty Impact Wrench brings a minimum of 300 ft. lbs. of torque to bear—removes rust encrusted bolts as slick as a whistle—bangs home bolts as big as  $1\frac{1}{4}$ " effortlessly. The powerful Black & Decker No. 300 does the work—not the operator!

Look about you! Chances are you'll see many applications for this great super-powered Impact Wrench—the tool that sets and removes bolts faster; saves you time and money. Then, mail the coupon for a free demonstration. A black & Decker distributor will be happy to show you—in your own plant, on your own equipment—just how much the new B&D No. 300 Impact Wrench can slash *your* maintenance down-time! **THE BLACK & DECKER MFG. CO., Dept. 1702, Towson 4, Maryland. (In Canada: Brockville, Ontario)**



Leading Distributors Everywhere Sell

**Black & Decker**  
Quality Electric Tools—Power-Built for powerful performance

### → MAIL COUPON TODAY ←

THE BLACK & DECKER MFG. CO., Dept. 1702, Towson 4, Md.

Please arrange a demonstration of your No. 300 Impact Wrench.

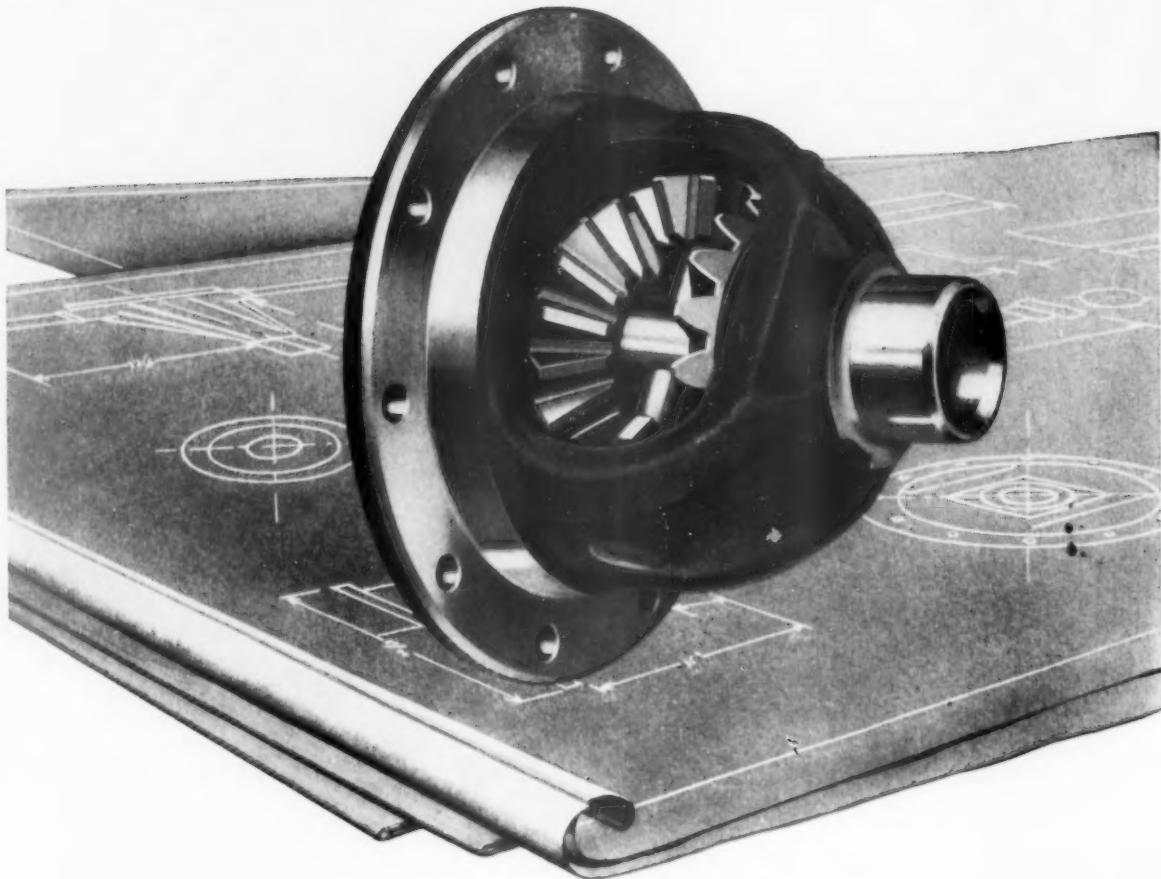
Send additional information.

Name ..... Title .....

Company .....

Address .....

City ..... Zone ..... State .....



## Save the cost of tooling up! . . . Specify Spicer components in your new axle design

The easy, economical way to design even the most unusual new axle is to build it around one or more Spicer components...this stock differential assembly, for example.

So why not recheck your blueprints? 9 out of 10 times you'll find Spicer can deliver just the differential assembly you need for your latest front or rear driving axle . . . at a fraction of the cost of producing a new design.

What's more, samples can be obtained quickly for any new development program.

The easiest way is to contact your Dana representative. He'll be glad to match up any number of Spicer axle components to create . . . at the lowest possible cost . . . just the axle you have in mind.

Spicer also has a line of rear and front driving axles with load carrying capacities from 1000 to 7500 lbs.

Be sure to write for Bulletin No. 364. It gives you all the dimensions you need to start designing with Spicer differential assemblies.



**DANA CORPORATION**

• Toledo 1, Ohio

DANA PRODUCTS Serve Many Fields:

**AUTOMOTIVE:** Transmissions, Universal Joints, Propeller Shafts, Axles, Powr-Lok Differentials, Torque Converters, Gear Boxes, Power Take-Offs, Power Take-Off Joints, Clutches, Frames, Forgings, Stampings.

**INDUSTRIAL VEHICLES AND EQUIPMENT:** Transmissions, Universal Joints, Propeller Shafts, Axles, Gear Boxes, Clutches, Forgings, Stampings.

**AVIATION:** Universal Joints, Propeller Shafts, Axles, Gears, Forgings, Stampings.

Many of these products manufactured in Canada by Hayes Steel Products Limited, Merrittton, Ontario.

For More Information Write No. 222 on Inquiry Card—Page 32

How

# RYKON

**GREASE**

*has performed in six tough applications*

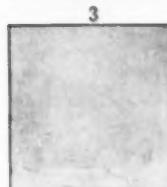
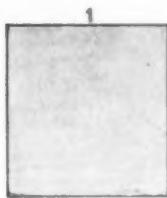
In just two years since introduction, **RYKON** Grease has stepped in to deliver lubrication in hundreds of applications where other greases have failed

The reason RYKON Grease can perform under conditions that cause other greases to fail is this: RYKON Grease has a unique non-soap, organic thickener. This thickener holds the oil between its fibers better than any other gelling agent. The thickener is able to withstand extremely high as well as low temperatures. It resists chemical action and remains stable under conditions of severe working and water washing. RYKON Grease has exceptional anti-rust properties.

RYKON Grease's unique properties make it truly multi-purpose. This leads to many worthwhile

economies. With one grease to do possibly every grease lubrication job in a plant, there's no chance for application mistakes. Inventory and handling of many single-purpose greases is reduced or eliminated. Maintenance training and supervisory follow-up is greatly reduced.

More facts about RYKON Grease are yours for the asking. Call the lubrication specialist in your nearby Standard Oil office in any of the 15 Midwest and Rocky Mountain states. Or write **Standard Oil Company (Indiana), 910 S. Michigan Ave., Chicago 80, Illinois.**



In the metalworking industry, where higher speeds, loads, temperatures and pressures are being put on bearings as a means of increasing productivity of equipment, a new type of grease has been needed. RYKON is that grease. Here are just 6 examples of how RYKON Grease has performed in tough spots:

Industry	Equipment	Type of Bearings	Conditions	Remarks
Metalworking	bearings over molten pot	—	high temperature	Temperature reaches 500° F. at times. RYKON stays in longer.
Steel Mill	pit crane, floor crane, charging car	plain and anti-friction	high temperature	Lasts twice as long as some other greases used.
Metalworking	drill head multi-spindle	anti-friction	heavy load	Other greases failed. Running cool on RYKON. No leakage.
Auto Manufacturer	switches on machine tools	—	wet	Good water protection and dielectric strength at a lower cost than previously.
Die Caster Bearing Manufacturer	die cast machines high speed spindle bearings	various anti-friction	high temperature high temperature, heavy load	Cut down wear considerably. Lasts twice as long as a high priced bearing grease. Does not darken or form varnish.

*You expect more from **STANDARD** and you get it!*



Oven test shows high temperature performance of RYKON Grease. 1. Metal panel coated with RYKON and placed in oven at 350° F. 2. Same panel after five days. RYKON is still soft and ready to lubricate. 3. Another high-melt grease ready for same test. 4. Same panel after oven test. Grease has failed completely.

For More Information Write No. 223 on Inquiry Card—Page 32

**NEED  
TUBULAR  
RIVETS  
IN A HURRY  
?**



NEW ENGLAND DIVISION  
Milford, Connecticut (Trinity 8-1761)



PENN DIVISION  
Hathboro, Pennsylvania (Osborn 5-4560)



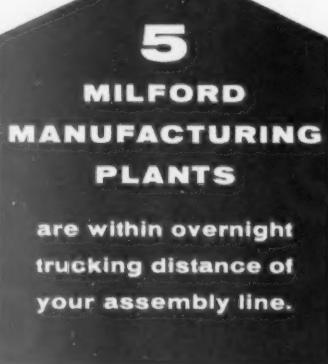
ILLINOIS DIVISION  
Aurora, Illinois (Aurora 2-4278)



OHIO DIVISION  
Elyria, Ohio (Fairfax 3-3137)



PACIFIC DIVISION  
Norwalk, California  
(Phone Whittier: Oxford 3-3777)



To give you unmatched service on tubular rivets, Milford has five manufacturing plants and twenty sales offices strategically located across the country's industrial beltline.

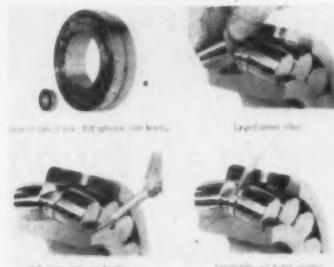
For the answers to delivery problems  
... get in touch with Milford first!



MILFORD, CONNECTICUT • HATHBORO, PENNA.  
ELYRIA, OHIO • AURORA, ILL. • NORWALK, CALIF.  
For More Information Write No. 224  
on Inquiry Card—Page 32

## Products

### Spherical Roller Bearings

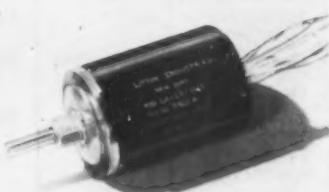


Three major design improvements in high capacity spherical roller bearings: maximum diameter and quantity of convex rollers for each bearing size; precision machined centrifugally-cast bronze retainers, and high, heavy inner race shoulders. All components are in optimum balance assuring long carefree bearing performance on the most severe installations.

Bearings available in series 22200 and 22300, in bore sizes ranging from 1.5748" to 11.0236" with dynamic load ratings up to 288,000 pounds. The bearings also will be available in pillow blocks in bore sizes ranging from 1-7/16" to 10". Link-Belt Co., Prudential Plaza, Chicago 1, Illinois.

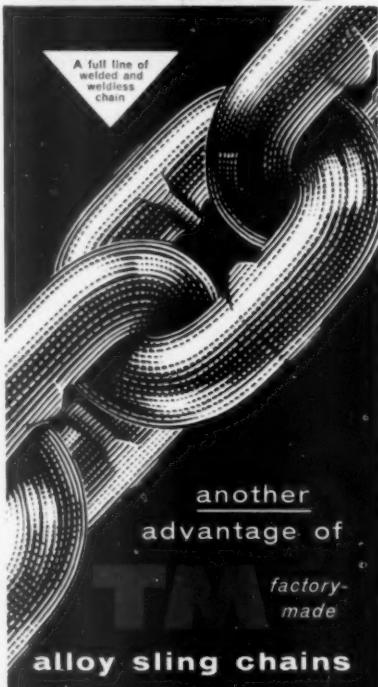
Write No. 26 on Inquiry Card—Page 32

### Ultra-Precision Potentiometer



25 turn, 2 inch diameter, ultra-precision potentiometer, Model MD 20-25, has a linearity as close as .0075% and very high resolution. It is equipped with wire lead connections (as shown) or can be supplied with terminals. The overall length is 2-9/16 inches with a bushing mount (as shown); standard servo mounts are also available when required. Potentiometer Products Div., 215 South Fulton Ave., Mount Vernon, N.Y. Write No. 27 on Inquiry Card—Page 32

# STRESS FREE LINKS



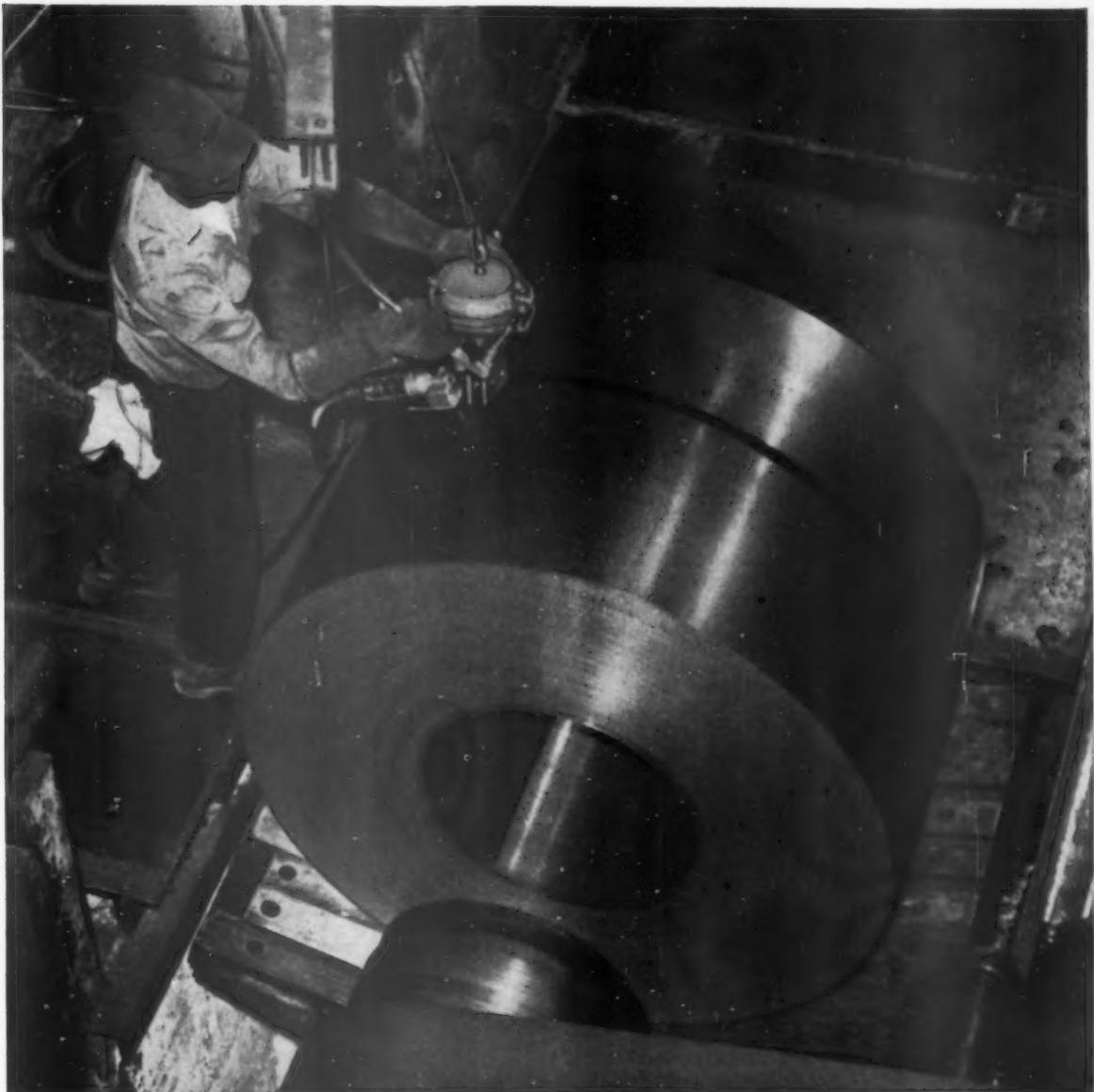
All body links on every size of TM Alloy Chain are electrically flash-welded to form Taylor's exclusive, stress-free links. This method, plus controlled heat-treatment, removes all stress—insures maximum strength and safety. Tayco Hooks ... Taylor's quality control and Test Certificate are other advantages. Get all the facts. Call your distributor or write for Bulletin 13.

S. G. TAYLOR CHAIN COMPANY, INC.  
Hammond, Indiana  
3505 Smallman St., Pittsburgh, Pa.

**Taylor  
Made**

**CHAIN** SINCE  
1873  
For More Information Write No. 225  
on Inquiry Card—Page 32

PURCHASING



## Packing Cost: 3 cents per ton

One steel strap packages this ten-ton steel coil. The strap is regularly applied in about thirty-six seconds. A Signode Model PN air power stretcher pulls the strap to 1600-pound tension every time; a Signode Model RCN 114 air power sealer applies the seal. There's no waste strap, and the cost of the strap and the seal together is only about 27 cents. The strength and low

cost of the steel strapping itself, plus the speed and simplicity of application, rule out any other way of doing the job. Find out how Signode strapping, tools, and skilled helpfulness with methods can make your product cost less to handle, store, ship and receive. There's no obligation...just call the Signode man near you, or write:



*First in steel strapping*

### **SIGNODE STEEL STRAPPING CO.**

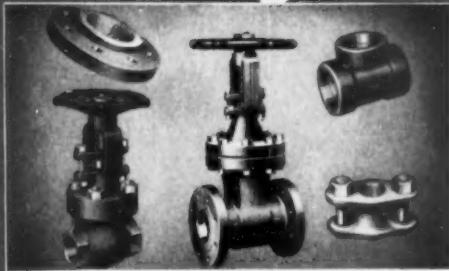
2676 N. Western Avenue, Chicago 47, Illinois

Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide

In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

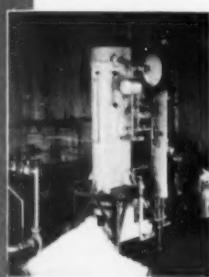
For More Information Write No. 226 on Inquiry Card—Page 32

# Vogt PRODUCTS



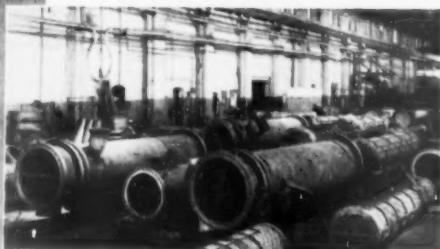
## FORGED STEEL VALVES & FITTINGS FOR TOUGHNESS AND TROUBLE-FREE SERVICE

Forged from carbon and alloy steels, Vogt valves, fittings, flanges and unions are built to safely handle liquids and gases at high pressures and temperatures in the modern petroleum refinery and petro-chemical plants. The complete line includes flanged, screwed and socket weld end globe, gate and check valves—ells, tees and crosses—couplings—bushings—plugs—unions—flanges and flange unions—and weld caps.



## MORE REFRIGERATION TONNAGE AT LESS COST

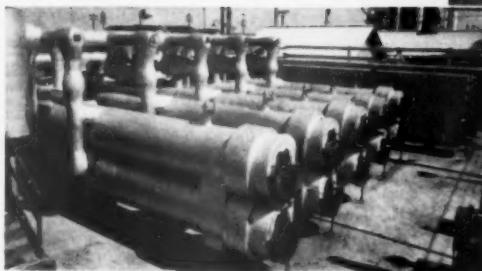
More than 70 years of engineering and manufacturing experience is incorporated in Vogt refrigerating and ice making equipment. Compression Systems and Tube-Ice Machines in a wide range of capacities serve industrial and processing plants and institutions here and abroad.



## SPECIAL MATERIALS COMBAT CORROSION AND PRODUCT CONTAMINATION

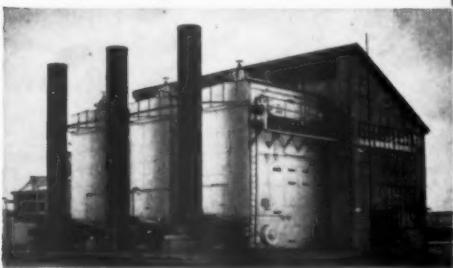
Our modern shops produce a wide variety of equipment from special metals and alloys to fight corrosion and product discoloration or contamination. Fabrication procedures insure that corrosion resistant properties of welds will match that of the materials used to construct the equipment.

*Designed for today's  
Tough  
Service demands*



## PROCESS EQUIPMENT FOR EVERY SERVICE

Vogt constructs process equipment in wide variety to all Codes. Stills and towers, oil chillers, crystallizers, heat exchangers, molding machines, etc., serve in the manufacture of oils, greases, 100 octane gasoline, synthetic rubber, chemicals and related products around the world.



## HIGH EFFICIENCY STEAM GENERATORS

Vogt steam generators are designed to give maximum rating in a minimum of space, with high efficiency and low maintenance expense. Bent tube and straight tube designs are available for solid, liquid or gaseous fuels to meet every power, process or heating requirement.

## HENRY VOGT MACHINE CO., LOUISVILLE, KY.

### SALES OFFICES:

New York, Chicago, Cleveland, Dallas, Camden, N. J.,  
St. Louis, Charleston, W. Va., Cincinnati

### PRODUCTS FOR REFINERIES, CHEMICAL PLANTS, POWER PLANTS AND PROCESS INDUSTRIES

Write for literature, Dept. 24A-GPM



## What are your Rollpin® requirements...

**Corrosion-resistant steel, beryllium copper, or carbon steel? An "available" fastener with better than 90% of the catalogued size and length combinations obtainable from stock? A fastener with consistent dimensional quality control and fully dependable strength and vibration performance? A fastener that costs less than most of the pin type fasteners it replaces . . . and cuts assembly costs too?**

Slotted, chamfered, cylindrical Rollpin spring-pins meet these requirements and many others. Available Rollpin inventory stands at tens of millions of pieces. Rollpin

performance is consistently high because uniform shear strength, dimensions and hardness are guaranteed by high ESNA quality control standards. Investigate installed Rollpin costs as compared to grooved-type pins, taper pins, precision dowels and many types of rivets.

Standard Rollpins are made from carbon steel and Type 420 corrosion-resistant steel in stock sizes from .062" diameter to .500". Cadmium, zinc or phosphate finishes may be specified. They're also available in beryllium copper for applications requiring exceptional resistance to corrosion, and anti-magnetic and non-sparking properties—in diameters from .062" to .250".

Why not simplify and speed up your orders by sending for data on all the Rollpin sizes and materials today? Elastic Stop Nut Corporation of America, Dept. R46-215, 2330 Vauxhall Road, Union, New Jersey.



**ELASTIC STOP NUT**  **CORPORATION OF AMERICA**

For More Information Write No. 228 on Inquiry Card—Page 32

**NEW  
MILBAND  
Machine  
Tool**

**Fastest  
Cut-Off  
Sawing**

**• Lowest Cost  
Per-Cut**

Here's the *first* machine tool designed and built from the bottom up to provide the extra ruggedness and rigidity needed to handle high speed steel band blades with full efficiency. Cuts many times faster than other cut-off methods.

Cuts consistently straighter, smoother, more accurately and to closer tolerances. Fully automatic operation gives you more pieces per man-machine hour.

Narrower kerf with less chip loss means big savings in material.

**GET THE COMPLETE TIME-AND MONEY-SAVING FACTS NOW... write today for your free copy of Circular No. 501-58, containing full data on the new Milband Machine Tool.**



*Saw Blade Specialists for Over 80 Years*

**THE HENRY G. THOMPSON & SON CO.**



**CHAPEL & SPILL STREETS  
NEW HAVEN 5, CONNECTICUT**

For More Information Write No. 229 on Inquiry Card—Page 32

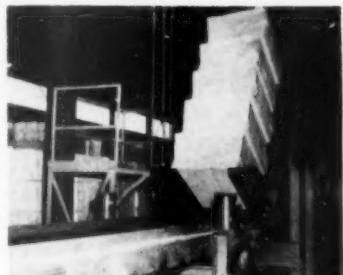
## Products

### New Type Photocells



Three-dimensional selenium photovoltaic "contour photocells" for new design possibilities in photoelectric devices. Since these specially processed, pliable photocells can be shaped into almost any form, they can be mounted on a rotating shaft in a position control servo-mechanism . . . or they may be used as a form of nonlinear function generator, when formed into a photo-sensitive cam. May also be used in a wide variety of electronic photoelectric devices for control applications, production flow processes, automatic inspection and sorting, and similar functions. International Rectifier Corp., El Segundo, Calif. Write No. 28 on Inquiry Card—Page 32

### New Method of Automatic Stacking



Method of automatic stacking utilizes two upenders in tandem. First upender receives loads, one at a time, and stands them up on the second upender. When five loads have been accumulated the second upender sets up the loads, stacked five high. The stack can be delivered to a conveyor as shown in the photo or can be picked up by an industrial truck. The units are controlled by a system of electric eyes. Will handle almost any load that can stand on end. Lamson Corp., Syracuse, N.Y.

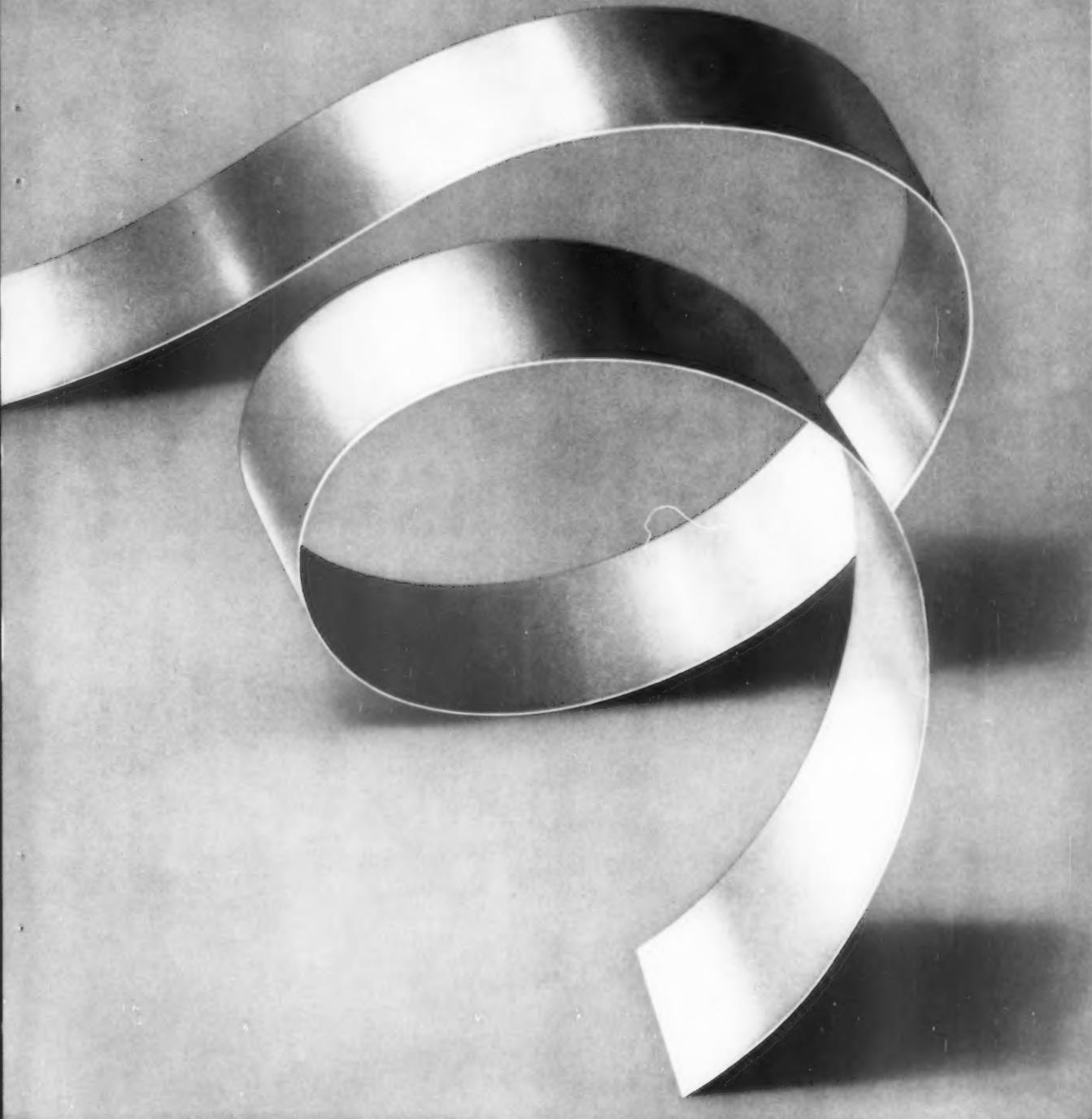
Write No. 29 on Inquiry Card—Page 32  
For More Information Write No. 230  
on Inquiry Card—Page 32—  
PURCHASING

## stainless strip — as you like it

Are your requirements for quality and finish in stainless strip being met? As Crucible makes it, it's rolled to your precise specifications—and produced with a finish that is truly lustrous. Not only that, Crucible ensures uniform metal-

lurgical quality by methodically checking each heat—and makes certain of uniform gauge with electronic measuring controls on the most modern rolling equipment. Next time you need stainless, consider Crucible—a major producer of stainless

in all gauges down to .010" and in all widths. Write to *Crucible Steel Company of America, Dept. S115, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*



**CRUCIBLE STEEL COMPANY OF AMERICA**

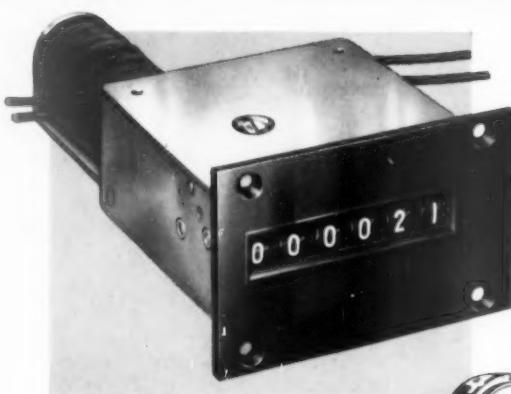
Canadian Distributor — Railway & Power Engineering Corp., Ltd.

# You don't have the answers ...unless you have FACTS-IN-FIGURES



"Box-car figures" are no good when the heat is on, and you have to know *exactly*. But when your production machines and processes are equipped with Veeder-Root Counters, you always have *all* the answers at your fingertips . . . correct to the last decimal point. For these precision counters count *anything* in any units desired, at speeds up to 300,000 counts per minute . . . manually, mechanically or electronically. And — *built into your products* — they will give the same advantages to your customers. Let us show you what Veeder-Root Control can do to cut your costs, and build your sales and profits. Write:

*You always "Know the score" when you count on Veeder-Root!*



## NEW Panel-Mounted, High Speed Electro-Magnetic Counter

Series 1591 Counters are ideal for DC applications requiring accuracy and long life at very high speeds. 4 or 6 figures. Instant pushbutton reset or remote electrical reset.

## Electrical Contactor

Assures positive actuation of 1591 Counters. Drive by lever or forked coupling.



*Everyone can Count on*



**Veeder-Root Inc.**

HARTFORD 2, CONNECTICUT  
Hartford, Conn. • Greenville, S. C. • Altoona, Pa. • Chicago  
New York • Los Angeles • San Francisco • Montreal  
Offices and Agents in Principal Cities

For More Information Write No. 231 on Inquiry Card—Page 32

WELDCO

THE YOUNGSTOWN WELDING & ENGINEERING CO.  
3718 Oakwood Ave., Youngstown 9, O.

WELDCO

For More Information Write No. 232 on Inquiry Card—Page 32

FEBRUARY 16, 1959



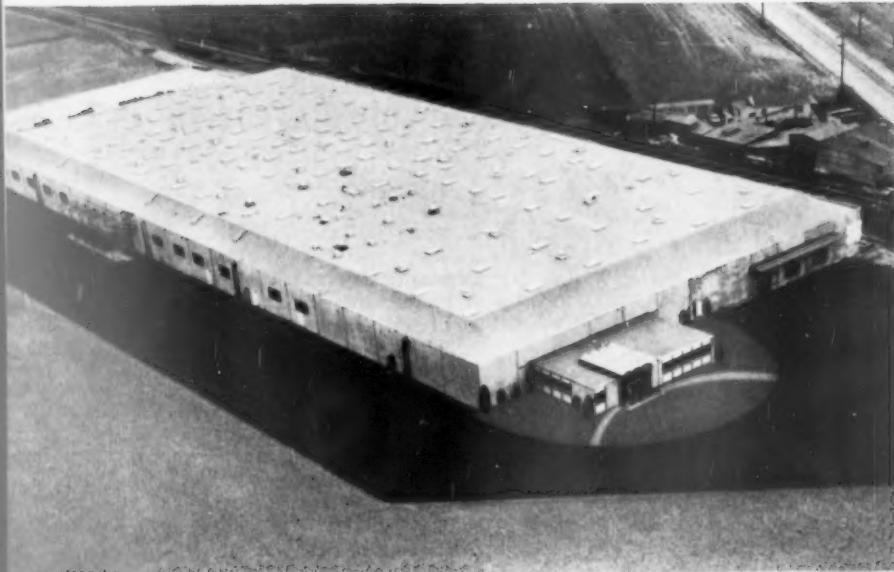
THE ONLY PIPE and TUBING  
MADE WITH THE *Exclusive*  
DOUBLE-FUSION  
WELDING PROCESS

In every length of WELDCO Pipe and Tubing, you get quality, uniformity, dependability . . . because WELDCO is produced by specialists—men who have the experience, equipment and facilities to make Pipe and Tubing to your exact specifications.

WELDCO (and only WELDCO) is welded with the exclusive Double-Fusion process. It's available in Stainless Steel, Monel, Inconel, Nickel, Cupro-Nickel, Hastelloy, and Titanium, in Pipe and Tube sizes from 3" to 30", Schedules 5, 10, and 40. When you think of top-quality, dependable Pipe and Tubing, think of WELDCO. A letter or phone call puts our 30 years of specialized experience to work for you.

Whatever Your Needs in Tubing...  
You're 'Way Ahead With WELDCO

# CAMPBELL CHAIN OPENS NEW PLANT



## Now, Complete Chain Making Facilities For The First Time On The West Coast

Campbell Chain's new plant at Alvarado, California is *the most modern chain plant in the nation*. The completely integrated plant is equipped to supply Campbell warehouses in Portland, Seattle and Los Angeles, and makes possible same-day or overnight shipment of Campbell Chain's complete line of welded and weldless chain.

The Alvarado plant marks a major development in the expansion of the company, adding to manufacturing facilities at York, Pa. and West Burlington, Iowa, and warehouses across the nation.

**CAMPBELL  
CHAIN**

**CAMPBELL CHAIN Company**  
York, Pa.—W. Burlington, Iowa—Alvarado, Calif.  
E. Cambridge, Mass.—Atlanta, Ga.—Dallas, Texas  
Chicago, Ill.—Seattle, Wash.—Portland, Ore.  
San Francisco and Los Angeles, Calif.

## Products

### Low-Cost Drill Stop



Drill stop serves five purposes: regulates depth of drill hole; coil spring cushions the "break-through"; prevents the chuck from marring work surfaces; reduces burr; increases drill life by adding support. Drill stop consists of two steel end pieces connected by a spring. It is held on the drill by a set screw, for adjusting to the required depth. Standard sizes fit drills from #50 to 5 16" diameter. Special sizes are available upon request. Wedgelock Corporation, 5446 Satsuma Avenue, North Hollywood, California.

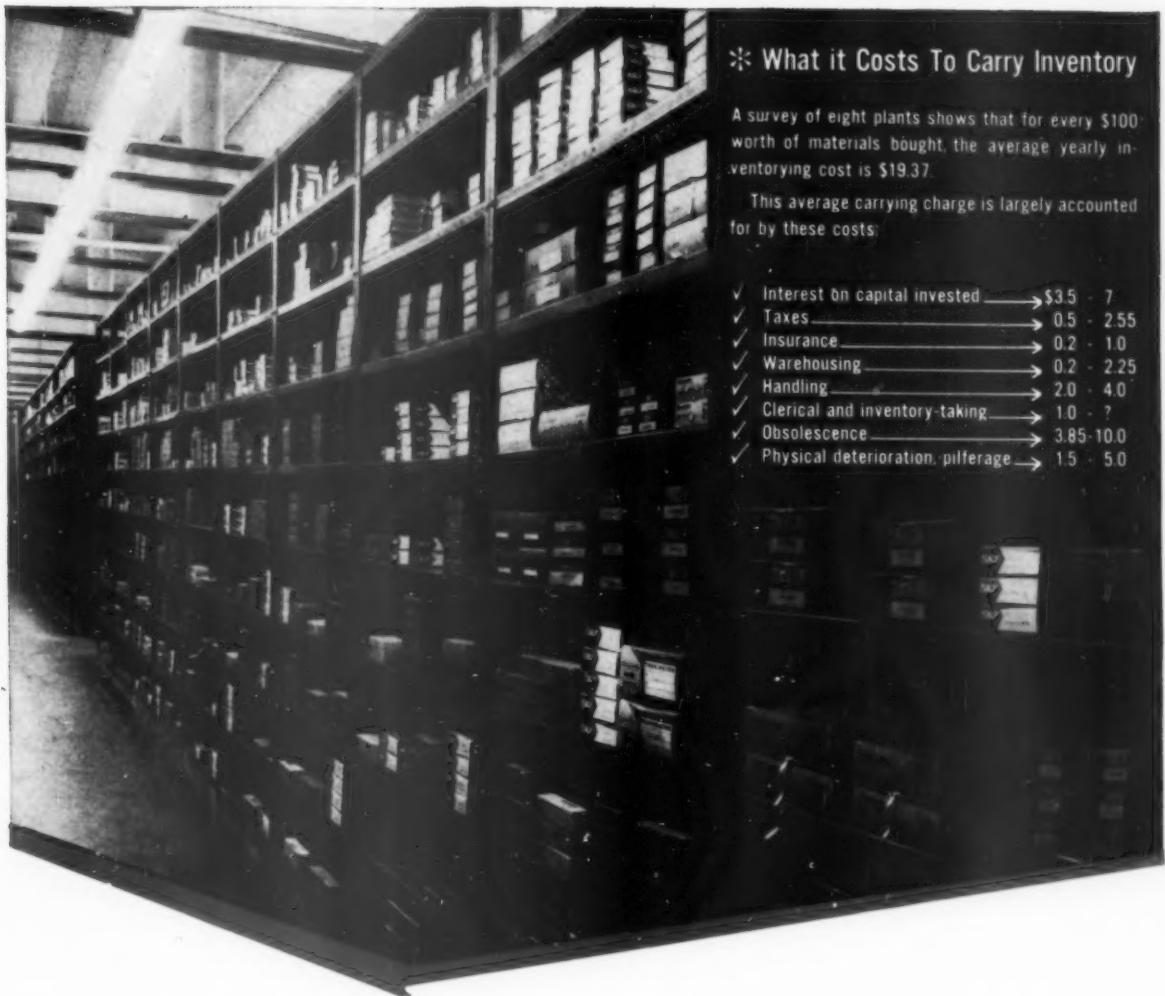
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### Drying Oven for Plastics



Compact, high-capacity pre-heating and drying oven solves the problem of moisture control in granular Nylon plastic materials. The new unit, the PLHD-2-5 with dehumidifier, is designed to maintain proper moisture content in such materials as Zytel, Lucite, Plexiglas, Cellulose Acetate and Tenite, prior to molding. Oven is one of a series of drawer-type ovens, available with or without dehumidifier and in different sizes. Dept. KP, Despatch Oven Co., 619 SE 8th St., Minneapolis, Minn.

Write No. 31 on Inquiry Card—Page 32  
For More Information Write No. 233  
+on Inquiry Card—Page 32



### ⌘ What it Costs To Carry Inventory

A survey of eight plants shows that for every \$100 worth of materials bought, the average yearly inventorying cost is \$19.37.

This average carrying charge is largely accounted for by these costs:

✓ Interest on capital invested	→	\$3.5	7
✓ Taxes	→	0.5	2.55
✓ Insurance	→	0.2	1.0
✓ Warehousing	→	0.2	2.25
✓ Handling	→	2.0	4.0
✓ Clerical and inventory-taking	→	1.0	?
✓ Obsolescence	→	3.85	10.0
✓ Physical deterioration, pilferage	→	1.5	5.0

## **Bearings, Inc. can cut your costs on bearing inventory . . . 2 ways!**

Inventory costs soak up a lot of dollars that could do much more for your company in other ways. We now perform inventory cost-cutting services for many of our customers and are ready to do the same for you.

**First**, a bearing survey of the bearings used in the equipment in your plant. We convert manufacturers' parts numbers to bearing numbers. This survey usually shows many identical bearings being held in inventory for different equipment when only one or two bearings will satisfy your immediate needs. A complete record is made of all

bearings you actually require and we keep this record up-to-date.

**Second**, you keep in inventory only a minimum number of bearings to take care of emergencies. Bearings, Inc. guarantees that the branch nearest your plant will stock all the bearings shown on your survey, ready for immediate delivery day or night!

Call or write for a Bearings, Inc. sales engineer to discuss this important, money-saving program NOW! Check our branch locations for the one nearest you.

\*Reprinted from *THE IRON AGE*

Providing bearing service

in the North

► **OHIO:** Akron • Canton • Cincinnati • Cleveland • Columbus • Dayton • Elyria • Hamilton • Lima • Lockland • Mansfield • Toledo • Youngstown • Zanesville  
**INDIANA:** Ft. Wayne • Indianapolis • Muncie • Terre Haute • **PENNSYLVANIA:** Erie • Johnstown • Philadelphia • Pittsburgh • York  
**WEST VIRGINIA:** Charleston • Huntington • Parkersburg • Wheeling • **NEW JERSEY:** Camden  
**NEW YORK:** Buffalo, Balaclava Corp. • **MARYLAND:** Baltimore • **DELAWARE:** Wilmington

and

in the South

► **BEARINGS, INC.**  
**DIXIE BEARINGS, INC.**  
FLORIDA: Jacksonville • GEORGIA: Atlanta • KENTUCKY: Louisville • LOUISIANA: Baton Rouge • New Orleans  
N. CAROLINA: Charlotte • Greensboro • S. CAROLINA: Greenville • TENNESSEE: Chattanooga • Kingsport • Knoxville • Nashville

For More Information Write No. 234 on Inquiry Card—Page 32



form it...

match it...

weld it...

shear it...

## Alan Wood Super Diamond floor plate ...is easy to fabricate

Wherever necessary, A. W. Super Diamond rolled steel floor plate can be sheared, formed, welded, and easily matched. The arrangement of the unique pattern allows you to bend it at any place.

This is a heavy duty floor plate that will last for years . . . and provide a safe, non-skid footing. No chipping, splintering or cracking . . . and no skidding. You save on cleaning costs, too . . . because A. W. Super Diamond is easily swept or mopped *from any direction*. It drains freely . . . no pockets to hold dirt.

For easy fabrication and installation . . . for safety . . . for long wear . . . specify A. W. Super Diamond. Write for Bulletin SD-N5.

### ALAN WOOD STEEL COMPANY CONSHOHOCKEN, PA.



DISTRICT OFFICES: Philadelphia • New York • Los Angeles • REPRESENTATIVES: Atlanta • Boston • Buffalo  
Cincinnati • Cleveland • Detroit • Houston • Pittsburgh • Richmond • St. Paul • San Francisco • Seattle  
Montreal, Toronto and Vancouver, Canada—A. C. Leslie & Co., Ltd.

For More Information Write No. 235 on Inquiry Card—Page 32

# EATON-RELIANCE cost-reducing fasteners do the job easier, faster, surer

## THE BEST INDUSTRIAL FASTENERS FOR THE MONEY



When you choose industrial fasteners for any type job, you look first for two things—QUALITY and PRICE. Eaton fasteners give you both. Eaton quality is the result of many years' experience, high engineering standards and an efficient quality control system. Eaton also gives you production and service geared to your schedules. The Eaton price is low—consistent with high quality—because machinery is modern, employees are skilled, and the raw steel is cold drawn, cold rolled and heat treated to rigid specifications.

Eaton-Reliance Industrial Fasteners are truly fasteners to be relied on. Design and industrial engineers

in major fast-moving industries such as automotive, farm implement, construction machinery, appliance—to mention a few—call for Eaton quality fasteners on many varied types of assemblies.

An examination of our complete line, described in Engineering Bulletin 4K/3, will show you the wide range of types available and give you fresh ideas on cutting your fastener costs; send for a copy today, or request one of our industrial fastener engineers to call. There is no obligation.



# EATON

SALES OFFICES: New York • Cleveland • Detroit • Chicago • St. Louis • San Francisco • Los Angeles



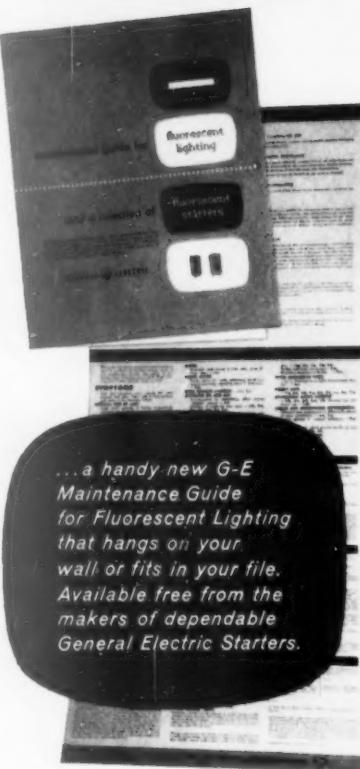
PRODUCTS: Engine Valves • Tappets • Hydraulic Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Hydraulic Pumps  
Motor Truck Axles • Permanent Mold Gray Iron Castings • forgings • Heater-Defroster Units • Automotive Air Conditioners  
Fastening Devices • Cold Drawn Steel • Stampings • Gears • Leaf and Coil Springs • Dynamatic Drives, Brakes, Dynamometers

—RELIANCE DIVISION—  
MANUFACTURING COMPANY

513 CHARLES AVENUE

MASSILLON, OHIO

To help you get  
more for your money  
from fluorescent  
lighting



Lists trouble symptoms and remedies on easy-to-use chart.

Helps you select properly matched components.

This new G-E guide is a handy reference chart for maintaining your present system... and more! It helps you to determine whether, and how, *improvements* can be made in the combination of lamps, starters, ballasts, etc., that you have now... to deliver *more* of the type of light you require, at *lower cost*. It brings up points you may not have realized before, that can make your job easier.

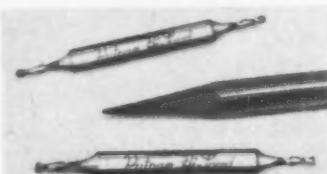
Ask your General Electric distributor for the new G-E Maintenance Guide for Fluorescent Lighting, or write General Electric Company, Wiring Device Dept., Providence 7, R. I.

**GENERAL ELECTRIC**

For More Information Write No. 237  
on Inquiry Card—Page 32

## Products

### Standard End Mills in Small Sizes



"Hi-Speed" end mills provide users with a line of standard end mills in small sizes and types previously unavailable: single or double end mills as small as  $1/32"$  in diameter. Stock removal operations as milling, profiling, routing or engraving in small or hard-to-get-at areas can now be done without special tooling. Available in diameters ranging from  $1/32"$  to  $3\frac{1}{16}$ " in increments of  $1/64"$ . Standard in two flute or four flute, single or double end and conventional or ball end. In all, 110 different types and sizes of standard end mills. Putnam Tool Company, 2981 Charlevoix Ave., Detroit 7, Michigan.

Write No. 32 on Inquiry Card—Page 32

### Grinder for High Speed Tool and Die



Single-stage high speed turbine grinder known as the "imp", Model 7979, does any kind of grinding or cutting where  $1/8$ -shank mounted wheels or cutters can be used. Grinds, deburrs, cuts, polishes. Delivers 75,000 r. p. m. at normal 90-lb. airline pressure. Vanes of the single-stage impeller allow a straight-through flow of pressurized air, so that exhaust air can be discharged at the spindle end of the tool. This air system blows chips and particles away from the work. The Aro Equipment Corp., Bryan, Ohio.

Write No. 33 on Inquiry Card—Page 32

### Water Soluble Cutting Fluid Does Job of Oil



A water miscible cutting fluid is especially designed to perform the heavy duty, low clearance, low speed operations previously limited to cutting oils. A single mix fluid, Cimperial covers 95% of all metal cutting jobs. Mixed with water at dilutions ranging from 1:5 to 1:15, it can replace cutting oils on heavy duty operations. At dilutions from 1:20 to 1:60 it can also be used for standard milling and grinding. Products Div., Cincinnati Milling Machine Co., Cincinnati 9, Ohio.

Write No. 34 on Inquiry Card—Page 32

### FILE LARGE ROLLED MAPS IN A PULL OUT DRAWER



For Executive Offices — finger-tip control drawer on ball bearing rollers, sliding steel door with tamper-proof lock. Fire-resistant steel throughout. Confidential storage for valued maps.

**OTHER ROLLFILES AVAILABLE**  
H-342 and H-345 stack in tiers. All KRAFTBILT map files provide index control system for locating.

**KRAFTBILT** is the line  
designed especially for the  
oil industry.

For CATALOG 39-A, write:  
Dept. F-229

**ROSS-MARTIN COMPANY**  
PO BOX 800-TULSA 1, OKLAHOMA

For More Information Write No. 238  
on Inquiry Card—Page 32  
PURCHASING

# Announcing a New Profit Improvement Program for Every Industry

This new profit improvement program from American Screw Company offers a significant departure from the usual consideration of fasteners: it will show you how fastening techniques can be applied directly to the improvement of your company's profit.

Your profit is the key because:

- a. we will show what quality in standard fasteners has already meant to manufacturers like yourself. One company last year had a \$300,000 order rejected solely because of poor fasteners.\* It cost nearly \$100,000 to correct the fault. That came out of profit.
- b. we will point out the factors of selecting standard fasteners that *can* make a significant difference in your costs and profits . . . regardless of how much you pay for the fasteners.
- c. we will talk about products that may cost more to buy but will cut your assembly and labor costs so drastically they result in considerable profit to you.

You will find these aspects — and others — of the Profit Improvement Program being brought to your attention regularly by American Screw Company salesmen and distributors, by messages appearing in these pages, by printed literature mailed to you.

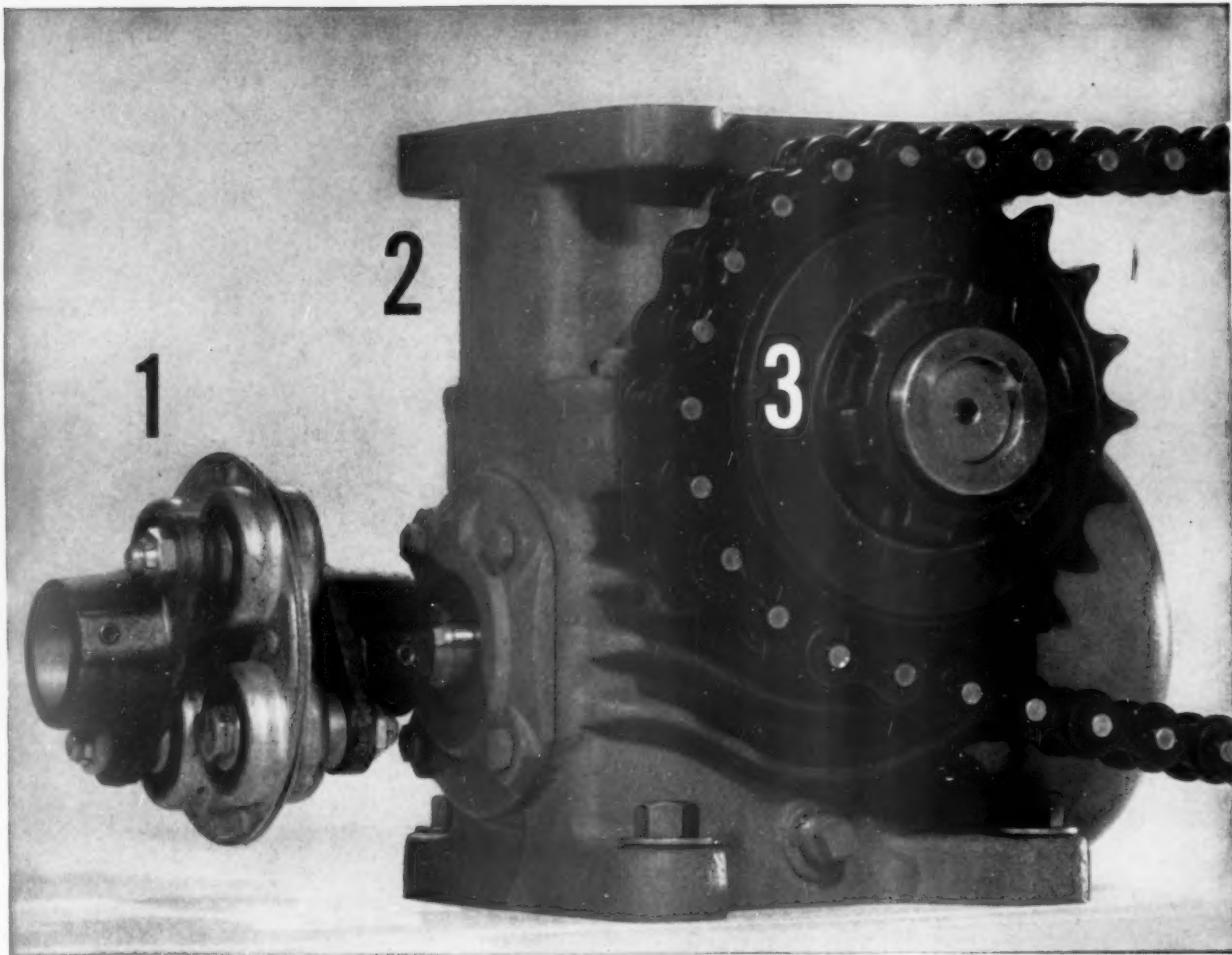
They will talk products, new developments, new ideas, new applications. They will make sense because they will make profits for you.

\*Not ours, thank heaven!

*The Biggest News in Fasteners* **A** comes from...



WILLIMANTIC, Connecticut • Chicago, Illinois • Detroit, Michigan



Morse's entry into the speed reducer field means:

**Nobody can service your  
as completely as Morse,  
all four of these power**

**1** **Couplings and  
Driveshafts**

Morflex  
Flexible Chain  
Radial  
Nylon

**2** **Eberhardt-Denver  
Speed Reducers**

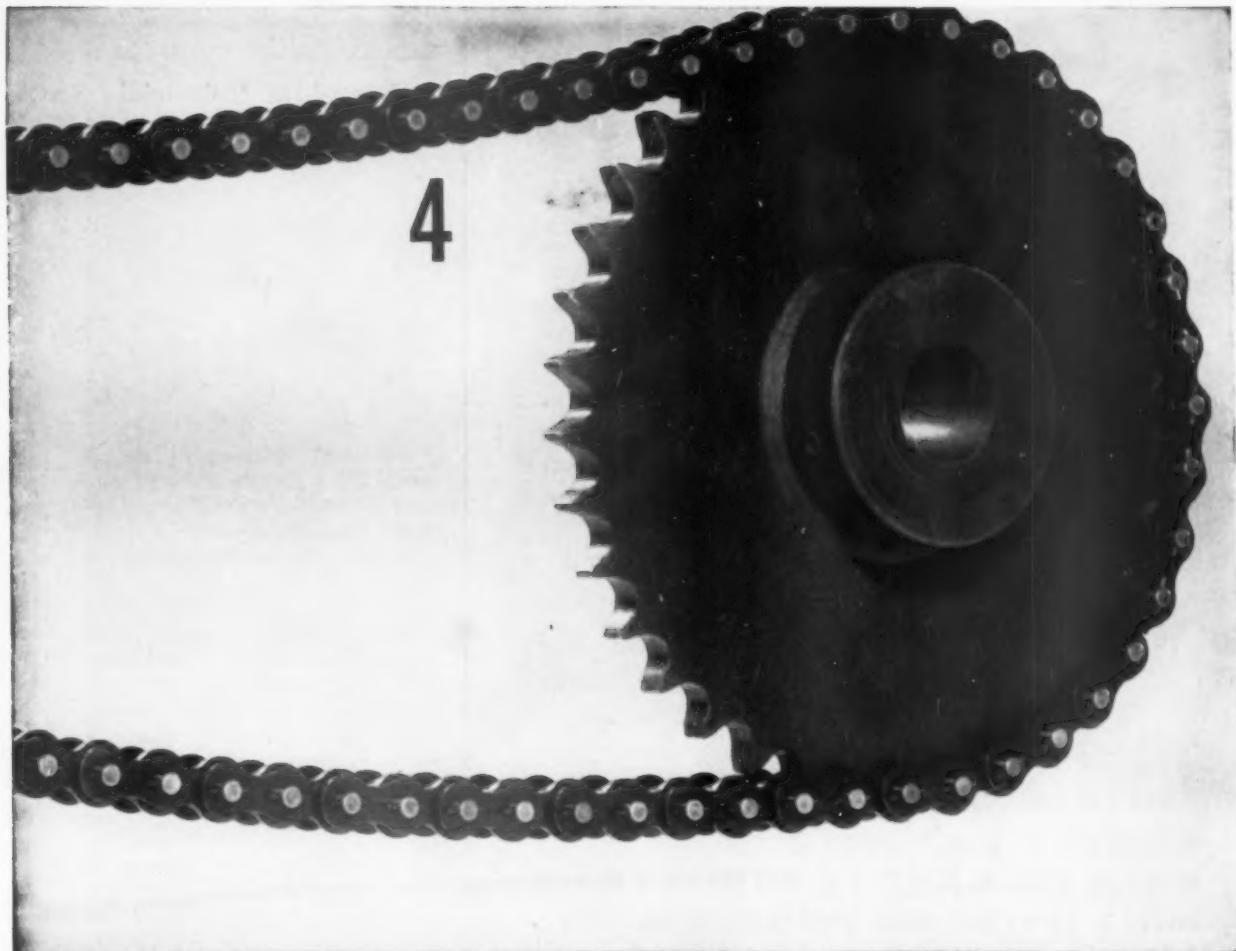
PowerGear®  
Worm Gear  
Helical  
Gearmotors

**3** **Clutches**

Torque Limiter  
Cam  
Overcenter  
Pullmore

**4** **Chain and  
"Timing" Belt Drives**

Roller Chain  
Silent Chain  
Hy-Vo® Drives  
"Timing"® Belt



4

# power transmission needs because only Morse offers transmission components

**REMEMBER:** The toughest jobs in power transmission come to Morse, because *only* Morse offers one-source service on all four of these basic components . . . and backs them up with technical know-how based on over 60 years' experience solving power transmission problems.

**MORSE CHAIN COMPANY, Dept. 15-29, ITHACA, NEW YORK. Export Sales: Borg-Warner International, Chicago 3, Illinois**

**MORSE**



A BORG-  
WARNER  
INDUSTRY

\*Trademark

For More Information Write No. 240 on Inquiry Card—Page 32 for Couplings and Driveshafts  
For More Information Write No. 241 on Inquiry Card—Page 32 for Eberhardt-Denver Speed Reducers

For More Information Write No. 242 on Inquiry Card—Page 32 for Clutches

For More Information Write No. 243 on Inquiry Card—Page 32 for Chain and "Timing" Belt Drives



## **SURVEY REPORTS SKIN DISEASE IS INDUSTRY'S NO. 1 HYGIENE PROBLEM**

### **Here's What To Do About It In Your Plant**

Recently, 2,177 major plants were surveyed by a market analyst to discover their No. 1 skin hygiene problem. The overwhelming majority of replies said: SKIN DISEASE.

The reasons for this answer:

- skin disease means costly medical treatment
- skin disease means prolonged absenteeism
- skin disease means worker dissatisfaction and compensation claims

What can you do in your plant to fight this problem? Call in an SBS skin cleanser representative. Most skin disease troubles can be traced to improper cleaning or use of the wrong cleaners. Your SBS representative is the man most completely equipped to study the situation and offer measures to improve it. He'll check all the conditions in your plant and recommend . . . not just a soap, but a *planned corrective skin hygiene program* for safe skin cleansing. Because Sugar Beet Products produces a *complete range of cleansers*, the SBS man can recommend the *exact ones* for your needs. Many famous firms are protected by SBS skin cleanser programs. Why not write us today? Dept. 58-B5.

*the washword of industry*

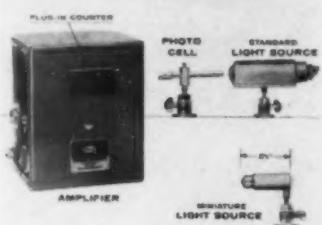
**SBS**  
sugar beet products co.

SAGINAW, MICH. • Los Angeles, Calif. • Newark, N.J.  
CANADA: Chemical By-Products, Ltd., Toronto, Ontario

For More Information Write No. 244 on Inquiry Card—Page 32

## **Products**

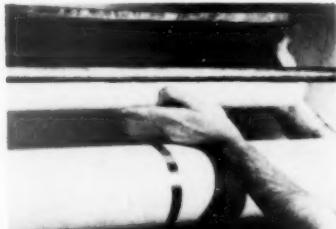
### **Long-Life Industrial Counter**



Industrial counting at speeds over 1,500 a minute accomplished with Robot-Eye RE-8 Photo-Electronic Counter. Counts by interrupted or reflected light beam. No physical contact with objects being counted. Embodies a 6-digit plug-in counter, which has a life of over 100,000,000 counts. Replacement counter element simply plugs in, extending instrument life indefinitely. Counter resets to zero at the touch of a button. Will detect and count at a rate of 1,500 a minute, objects  $\frac{1}{4}$ " long moving as fast as 2 feet per second. Standard Instrument Corp., 657 Broadway, New York 12, N.Y.

Write No. 35 on Inquiry Card—Page 32

### **Rigid Cellular Glass Insulation**



Ease of installation of Foamglas "Stay-Dry" pipe covering developed for commercial application is graphically demonstrated in the above picture. The simple method of applying the low-cost, rigid, cellular insulation around the smaller pipe is illustrated at the top of the picture. The finished covering is shown on the heavy piece of pipe at the bottom. Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22, Pa.

Write No. 36 on Inquiry Card—Page 32



THIS CATALOG ILLUSTRATES  
THE WORLD'S MOST  
DIVERSIFIED LINE  
OF STEEL EQUIPMENT  
IT'S FREE!



## ★ QUALITY PROTECTED BY LYON "POINT-CHECK" SYSTEM

- ✓ FABRICATING
- ✓ ASSEMBLING
- ✓ FINISHING
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Look for the "QP"  
on every Lyon Carton.  
It is your assurance  
of quality equipment.

See your Lyon Dealer  
for prompt delivery of  
the world's most diversified  
line of steel equipment

**LYON METAL PRODUCTS, INC.**

General Offices: 233 Monroe Ave., Aurora, Illinois  
Factories in Aurora, Illinois and York, Pa.  
Dealers and Branches in all Principal Cities

**LYON**  
STEEL EQUIPMENT

For More Information Write No. 245 on Inquiry Card—Page 32

# ORDERING TUBING?

COPPER

BRASS

ALUMINUM

WOLVERINE TRUFIN®

Get the extra service  
only WOLVERINE TUBE can give!

WOLVERINE TUBE

Wolverine Trufin is available in Canada through the Unifin Tube Division, London, Ontario.

**Check Today!**

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URANIUM DIVISION  
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**WOLVERINE TUBE**  
DIVISION OF  
CALUMET & HECLA, INC.  
17250 Southfield Road  
Allen Park, Michigan  
  
Manufacturers of Quality Conductive Tubing and Extruded Aluminum Shapes

For More Information Write No. 246 on Inquiry Card—Page 32  
132

For More Information Write No. 247 on Inquiry Card—Page 32—  
PURCHASING

# FULL-LOAD TESTED!



## Only G-E Ignitrons Come *PROVED* for Welding Service!

General Electric is the only builder of ignitrons to use test equipment which fully proves tubes under actual welding conditions. Tests are made at voltages and currents exceeding maximum requirements.

Occupying over 3,100 cubic feet of area, General Electric's extensive test equipment probes for—and rejects—any operating faults which might affect the performance of G-E ignitrons in your plant, such as improper ignitor firing, tube arc-backs, etc.

Here is unexcelled protection for your dollar investment in ignitrons! Here is the best possible

assurance that your welder downtime will be kept low—that production will remain high.

Install General Electric *full-load-tested* ignitrons! Made in the widest range of sizes and types. Fully competitive in price . . . stocked by a G-E tube distributor who is near you. Phone him! *Distributor Sales, Electronic Components Division, General Electric Company, Owensboro, Kentucky.*

*Progress Is Our Most Important Product*

**GENERAL**  **ELECTRIC**

11-12-102

# MORE SKILL in EVERY HAND



## Vitalloy® Forged ENGINEERS'

15° Angle - Double Head

### "The Aristocrat of Wrenches"

They feel good in your hand. Balanced to permit continuous use with less "lift fatigue". Light weight and plenty strong. Drop forged from special analysis alloy steel, heat treated, quality controlled and have the Billings guarantee to meet today's industrial production needs... skilled hands like to use Billings Tools.

**BUY 'EM**  
from your  
**BILLINGS DISTRIBUTOR**



# BILLINGS

## WRENCHES

## SHOP TOOLS

Since 1869 Tools and Forgings of Quality

THE BILLINGS & SPENCER CO.  
HARTFORD 1, CONN.

For More Information Write No. 248  
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## Products

### Titanium Tubing Now Sharp Bent



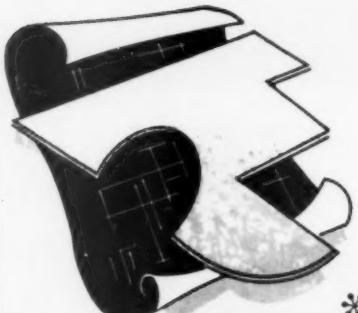
Tubing of titanium can now be bent sharply without damage on a radius as little as its own outside diameter, only one third of what was considered practical before. The tubing is bent on angles up to 90 degrees with radii equal to that of the outside diameter in a variety of configurations. Tubing with an OD of .750 of an inch and a wall thickness of .035 of an inch, for example, has been bent to 90-degree angles on .750-inch radii.

Development is the work of the Kreisler Industrial Corporation, Paterson, N. J., using grade A-40, soft-annealed, commercially pure titanium tubing produced by Superior Tube Company, Norristown, Pa. Kreisler bends the tubing by drawing it around a rotating bending form. It is held in position under proper pressure and supported by means of special moving clamps, dies and mandrels. Machine operating time and bending cycles are carefully controlled.

Write No. 37 on Inquiry Card—Page 32



*by Bobo*  
"Yes, . . . whatever you're  
selling . . ."



## We fit FELT\*

Our experts in the Industrial Division  
will cut FELT to fit your specifications!

\*Available in Wool Felts or new Synthetic  
Fiber Felts — all weights, widths, colors,  
etc. — and made to S.A.E. and  
Federal Gov't. Specifications . . .  
Large diversified inventory  
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CONTINENTAL FELT COMPANY, 1933  
22-26 WEST 15th STREET NEW YORK 11, N. Y.

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*you can rely on*

**QUALITY**

*when you order*

*gray or alloyed iron*

**CASTINGS**

*from*

**DECATUR**

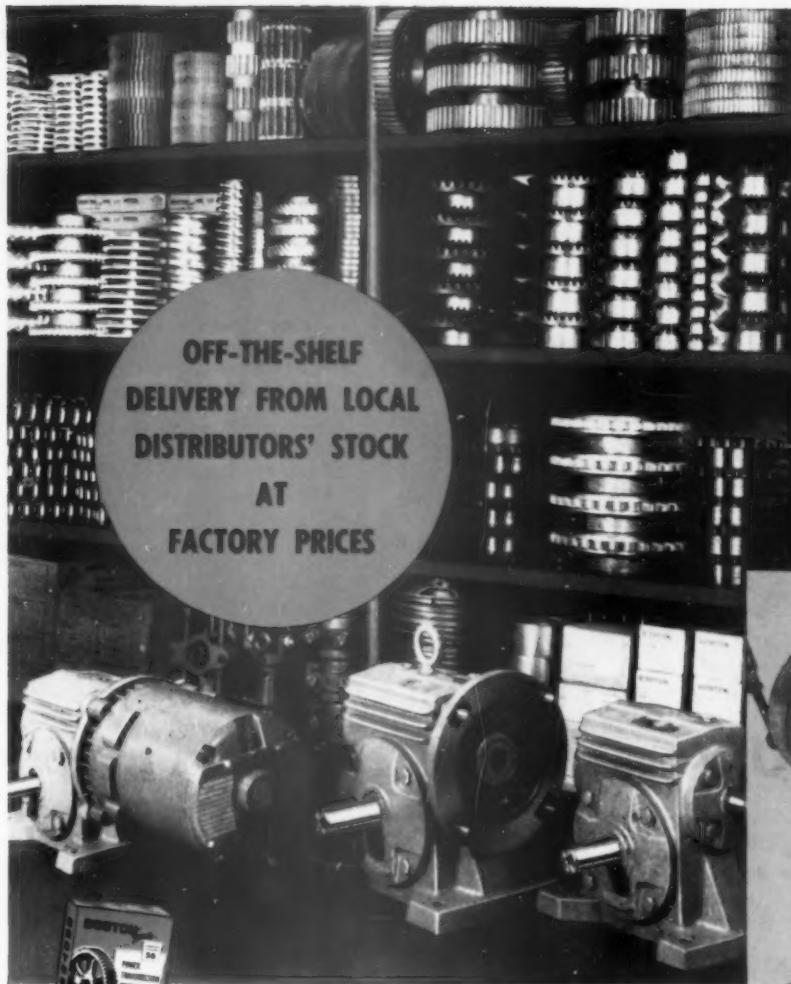
*Casting Co.*

*Decatur, Indiana*

*Phone 3-2700*

For More Information Write No. 250  
on Inquiry Card—Page 32

PURCHASING



**Catalog lists 7124 Standardized Products**

STOCK GEARS • SPROCKETS and CHAIN • SPEED REDUCERS  
BEARINGS • PILLOW BLOCKS • COUPLINGS • PULLEYS

**You simplify planning.** Select all the parts you need from one source — the Boston Gear Catalog.

**You save time and expense.** Order from your Boston Gear Distributor for off-the-shelf delivery. Why wait (and pay more) for parts "made-to-order"?

**You get top-rated performance.** Compare the quality and service life. You'll agree Boston Gear products set the highest standards.

Your Boston Gear Distributor is fully qualified to help you get the maximum benefits from standardization — in lower costs, in simplified servicing. Boston Gear Works, 74 Hayward St., Quincy 71, Mass.

**CALL YOUR BOSTON Gear DISTRIBUTOR**

*Remember — STANDARDIZATION PAYS —*



**For cost-wise  
TRANSMISSION  
design and maintenance  
ECONOMY**

**STANDARDIZE on  
BOSTON Gear**

**NEW**

For  
SHAFT MOUNTING  
or  
BASE MOUNTED  
to meet any  
drive condition

**BOSTON Gear  
OPTIMOUNT**  
TRADEMARK

**HELICAL GEARED  
REDUCTORS  
RATIOMOTORS  
AND FLANGED REDUCTORS**



Call your Distributor for  
complete information.  
Ask for Catalog OP-1.

**SINGLE or DOUBLE REDUCTION**  
 $\frac{1}{6}$  to 15 HP drives  
66 models

**FROM  
STOCK!**

# YOUR ELECTRIC TRUCK BATTERY

Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 20, Pa.



**Up to 44% more power.** New Exide-Ironclad Batteries with armored porous tubing pack more power in the same size. So you can boost the work capacity of your present trucks, large or small—do more work. Or get the same power in a smaller size. Either way, you get longer life potential and more power per dollar for greater battery economy.

## 50 YEARS AGO, EXIDE PATENTED THE TUBULAR PLATE BATTERY

Exide was already 21 years old when it launched the Exide-Ironclad Battery—back in 1909. But the idea of the tubular positive plate was brand new. It was especially designed for electric truck service. Would it really give the longer battery life Exide engineers expected? Would it make possible greater battery economy? Look at the results.

Against every other type of battery—in every type of industrial truck application—in all kinds of heavy duty service, nothing has been found to match the Exide-Ironclad. A recent survey revealed that 91% of truck owners who have used Exide Batteries still use them. Once they experience the advantages Exide Batteries offer, they seldom buy any other brand. No other battery ap-

proaches this record of user satisfaction.

Today, of course, the Exide-Ironclad Battery is 50 years better than it was in the beginning. Exide engineers have constantly improved it. They have learned the secrets about tubular plate construction that only experience could teach—secrets about casting the lead grids, formulating grid alloys, composition of active material, filling the tubes, performance of tubing (about 20 different types were tested over a 15-year period before the last change). So the new Exide-Ironclad Batteries give today's buyer greater life and economy than ever before.

**For more details on the new Exide-Ironclad Batteries, write for a copy of the 8-page, illustrated Brochure #6230**



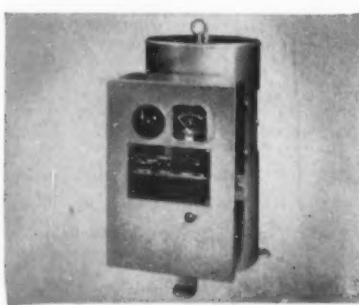
**Today's advanced-design electric industrial trucks** yield their greatest economy and productivity when teamed with the new, more powerful, Exide-Ironclad Batteries.

### Now—get your chargers from Exide too

A complete line of chargers for electric truck batteries. New vertical-design motor generator chargers feature down-draft cooling for cleaner operation. Save  $\frac{1}{3}$  on floor area mounting space required. Can also be wall mounted. Simplified design and standardized construction make possible significant parts economies which are passed on to you. With Exide as your single source for both

batteries and chargers, you are assured of better value, better performance and better service. *Write for new brochure giving complete information.*

**Exide**®





## CALL THE TRUSCON MAN...

*Be sure you're getting your money's  
worth out of your plant painting program*

The most economical way to paint your plant is to be sure that every paintable surface is coated with the type of paint that will stay there *longest*.

There is no one type of paint that is good for all surfaces. It's a real science to formulate coatings for different types of surfaces — and you can take advantage of Truscon's half century of experience at absolutely no cost to you.

Call the Truscon man. He'll survey your entire plant and make a detailed report to you — proving whether your plant is getting

all the protection you're paying for. If any surface, inside or out, is not properly protected he will give you a written specification for 100% protection — without obligation.

Truscon coatings have protected plants of all sizes in all parts of the country for 50 years. Names of well-protected Truscon customers will be supplied to you upon request.

See the yellow pages of your telephone directory for the Truscon factory branch nearest you. Or write Truscon Laboratories, Detroit 11, Michigan.



**the "cheapest" way  
to paint is to  
use the best paint  
...it stays on longer**

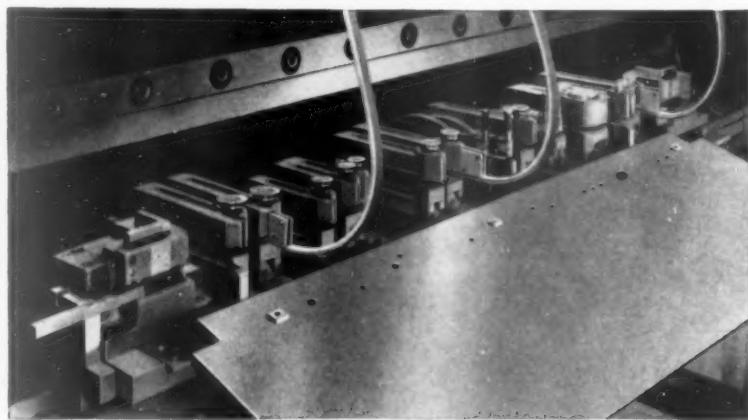
**TRUSCON** *Laboratories*

Industrial Maintenance Division of Devoe & Reynolds Co., Inc.  
Detroit 11, Michigan

**NEW**

## **STRIPPIT UNITS**

**... stake nuts permanently  
with every press stroke!**



**STRIPPIT PIERCE NUT UNITS** save operations, time and money in assembly panel production with single-stroke insertion of Fabristeel Multipierce Nuts\* into sheet metal up to .125" thick.

**Permanent Fastening by an Exclusive New Process**—as nut pierces stock, metal flows into nut shoulder slot, becoming an integral part of the stock.

**High-Speed**—fast press setups, automatic feed of nuts to units for long, medium or short runs gets maximum production per press.

**Flexibility**—Pierce Nut Units can be quickly press-mounted in any desired pattern, changed on short notice, re-used over and over.

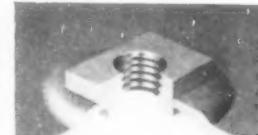
\*A Product of Fabristeel Products, Inc.



Each nut is its own punch,  
a new one each time



Die button causes material  
to flow into nut slot



Simultaneous embossing  
for flush fastening

**WRITE FOR DEMONSTRATION** on your press! The speed and simplicity of Strippit Pierce Nut operation has to be seen to be believed. Also request new catalog for complete specifications.

**WALES STRIPPIT INC.**

229 Buell Road, Akron, New York

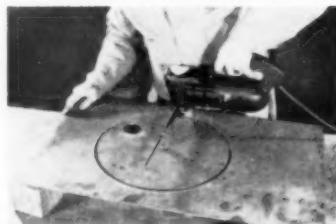
In Canada: Strippit Tool & Machine Company, Brampton, Ontario

For More Information Write No. 254 on Inquiry Card—Page 32



## **Products**

### **Nibbler Attachment**



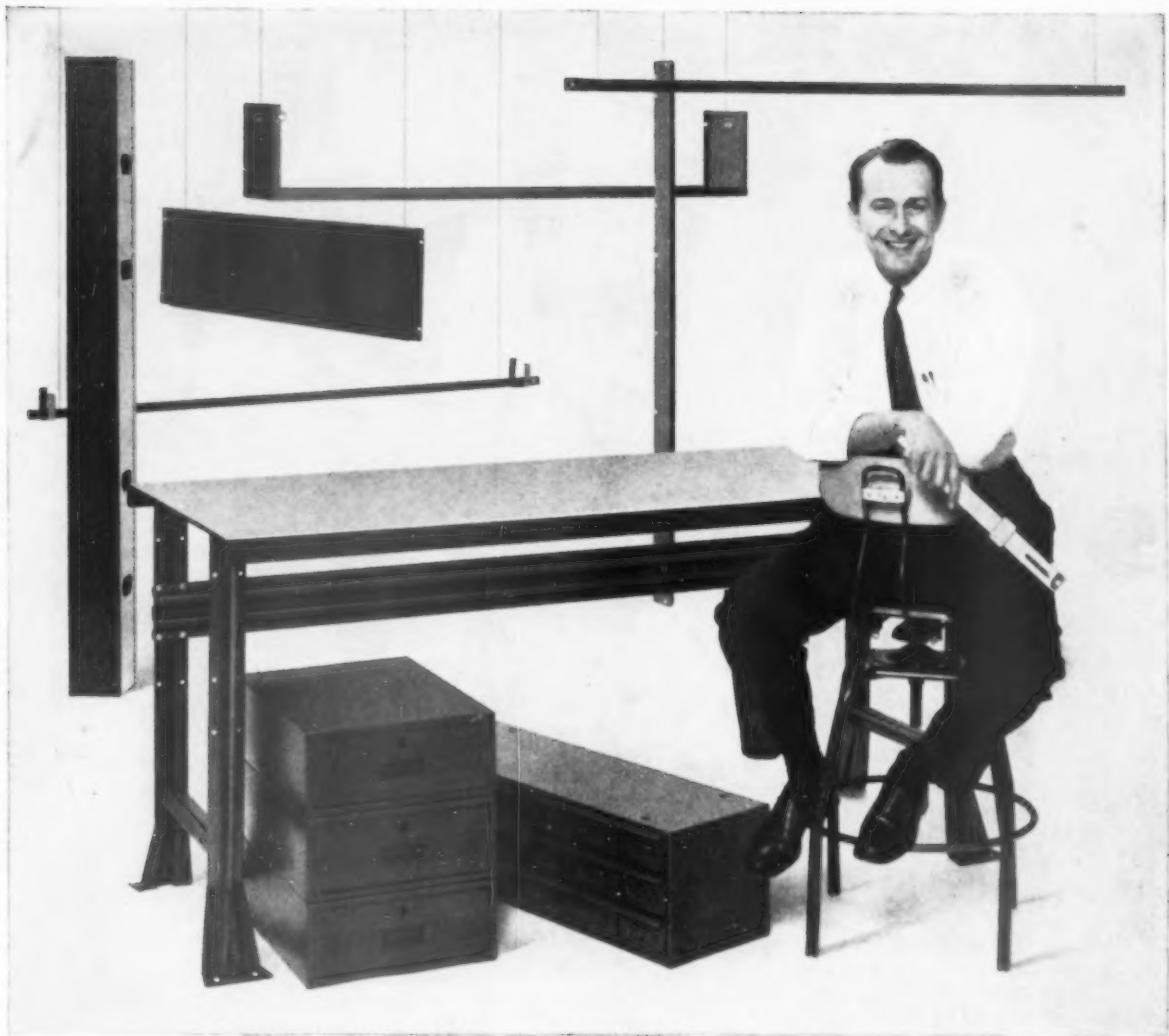
Attachment fits all model Fenway portable electric nibblers. Perfect circles are possible from limit of nibbler's radius to unlimited diameters. Pictured herewith in 4 easy steps is the model HN nibbler cutting 11 ga. stainless on a circle application. Just choose the standard length attachment, 12" or 24", to which extensions may be added for increased radius. Separate picture shows completed operation in 4½ minutes on 15" circle, including make ready. For economy through efficiency this device improves workmanship and adds to the versatility of the already popular line of nibblers, which cut without distortion on either side, stainless up to 10 ga. (.140). Pensco Products, 527 Lexington Ave., New York 17, N.Y.

Write No. 38 on Inquiry Card—Page 32

### **Device Simplifies In-Plant Reel and Coil Handling**

In-plant handling of heavy wire reels, sheet metal coils and other hollow-centered, cylindrical shapes is simplified by this reel positioner. Accurate and rapid positioning of reels, weighing up to 500 pounds, is achieved by a pedal-operated hydraulic lifting mechanism. This hydraulic lift has a mechanical lock to hold the reel in any raised position for extended periods of time. The unit consists of the lifting mechanism mounted on a steel frame equipped with two fixed wheels and two swivel casters. Designed especially to handle reels, the new reel positioner eliminates all unnecessary lifting. By using the Safeway Reel Positioner, one man can load and unload heavy reels; cranes and fork lift trucks are freed for other work. American Pulley Co., Philadelphia, Pa.

Write No. 39 on Inquiry Card—Page 32



## You can do almost anything with a Hallowell bench

Custom-built benches for assembly areas, soldering, inspection, tool rooms, laboratories, model shops and other uses needn't carry special equipment price tags. With Hallowell standard work bench variations, you can install a full range of special equipment, at standard bench prices.

**Make changes as you need them.** Add accessories, drawers, cabinets, electrical equipment easily

and quickly to meet changing requirements. Re-equipment costs are kept to a minimum because you buy only the additional parts and accessories you need.

**Make a sound investment.** Hallowell Steel Equipment doesn't become obsolete. It has almost unlimited adaptability to new and different uses. And its ruggedness is your assurance of long-lasting value.

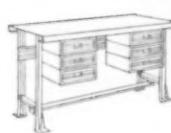
### CUSTOM-TAILOR HALLOWELL OPEN BENCHES TO YOUR SPECIFIC NEEDS



Add drawers ...



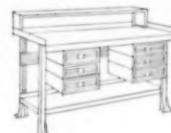
... or an electrical panel ...



drawer tiers ...



lower shelves ...



... or a top shelf ...

... or combinations of these and many other accessories available from stock.

There's an authorized Hallowell distributor near you who will be glad to show you the complete Hallowell line. Get in touch with him, or write Columbia-Hallowell Division, SPS, Jenkintown 31, Pa. or SPS Western, Santa Ana, Calif.

**SPS**

**Jenkintown • Pennsylvania**

Standard Pressed Steel Co. • The Cleveland Cap Screw Co. • Columbia Steel Equipment Co. • National Machine Products Co. • Nutt-Shel Co. • SPS Western • Standco Canada, Ltd. • Unbrako Socket Screw Co., Ltd.

For More Information Write No. 255 on Inquiry Card—Page 32

order

**POLYPENCO®**  
**INDUSTRIAL**  
**PLASTICS**

*... and you'll reorder them again... and again!*



**Products of The Polymer Corporation**

POLYPENCO Nylon stock shapes  
NYLAFLOW® Pressure Tubing  
POLYPENCO Teflon® stock shapes  
FLUOROSINT® TFE fluorocarbon molded parts  
POLYPENCO Q-200.5 (Cross-linked polystyrene)  
POLYPENCO K-51 (Chlorinated polyether)  
FERROTRON® Ferromagnetic materials  
NYLATRON® Filled nylon molding powders  
NYLASINT® Finely divided nylon powders  
CORVEL® Fusion Bond Finishes

†Dupont trademark

\*Trademarks of The Polymer Corporation

Whether your company is a small manufacturing plant or an industrial giant—the benefits of working with The Polymer Corporation are equally important and effective to you.

Time after time, original orders have ended with a POLYPENCO industrial plastic being written into a long-term specification.

The reason is Polymer *policy*—an important plan we believe vital to purchasing agents today. Here's what it provides:

- Industrial plastics of quality standards unmatched in the industry—for dependable cost saving production, and utmost reliability of finished product.
- Service to speed and simplify production application.
- A wide selection from warehouse stocks in major cities, coast to coast—for fast delivery.
- Helpful working data and technical
- Convenient stock shapes... custom extrusions... complete fabrication service—for your individual requirements.
- Continual research to develop ever-newer, ever-finer industrial plastics to answer new challenges of today's industry.

The Polymer Corporation of Penna.  
National Polymer Products, Inc.  
Polymer Processes, Inc.  
Halex Corporation

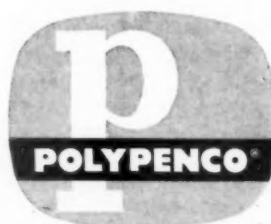
*Write today for complete data on any of these products or services and the name of your nearest supplier.*

Subsidiaries of  
**THE POLYMER CORPORATION**  
Reading, Pa.

Export: Polypenco, Inc., Reading, Pa., U.S.A.

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140

For More Information Write No. 257 on Inquiry Card—Page 32→  
**PURCHASING**



*Progress Is Our Most Important Product*

GENERAL  ELECTRIC



# DECISION

"Alone . . . just me and my question . . . which lamps to buy. All look about alike . . . but I keep remembering what past experience has proved to us about General Electric Lamps. That 999 out of 1,000 are sure-starters . . . and 99 out of 100 will still be burning in 1961. And happy thought! We pay less for a case of G-E Fluorescent Lamps today than we did in 1950!"

**DECISION: "Why gamble on performance when I can get G-E Lamps at little or no premium in the purchase price."**

General Electric Co., Large Lamp Dept. C-905, Nela Park, Cleveland 12, O.



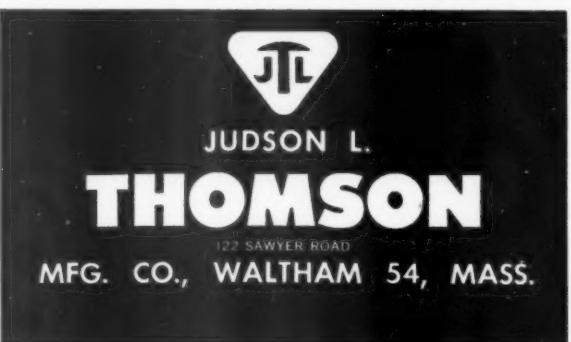
THOMSON TAKES EXTRA  
PAINS TO PREVENT  
FASTENING HEADACHES!  
Statistical quality control  
procedures plus 100%  
inspection give double  
assurance of close adherence  
to specified rivet dimensions  
and positive protection  
against interrupted production.

## YOU GET PRECISION FASTENING AT MASS PRODUCTION COSTS...

... when Thomson becomes your fastening partner.

In the Thomson line of more than 8,000 rivet designs, you'll find the semi-tubular, deep-drilled, bifurcated (split), shouldered or compression rivet that will give you the best strength-cost ratio in the fastening field. Produced to the industry's highest quality standards at production rates exceeding 20,000,000 rivets a day, these low-cost fasteners merit serious consideration in your product-improvement and cost-reduction programs.

*Our leadership in solving fastening problems with quality rivets and precision rivet-setting machines since 1885 is at your service. What is your problem?*



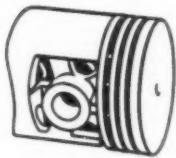


## POSITIVE DUPLICATION - EVERY TIME!



**PD** \* Exact duplication of one person's fingerprints by another person is impossible. Discovery of this amazing fact in 1891 changed the science of detection and identification throughout the world.

But Positive Duplication of grinding wheels by the CINCINNATI **PD** manufacturing process is a remarkable fact also . . . time after time !



Every time you reorder the center-type wheel shown above, which grinds this automobile piston, that CINCINNATI **PD** wheel will act and grind exactly like the original . . . saving you time and money, and maintaining your production.

This is true of *any* CINCINNATI **PD** WHEEL you specify: centertype, centerless, internal, surface, toolroom, and snagging wheels.

Another advantage for you is that every factory representative is a highly trained specialist in grinding machine set-ups and operations. For his help on those extra-tough grinding problems, see your CINCINNATI **PD** Grinding Wheels Distributor or contact Cincinnati Milling Products Division, Cincinnati 9, Ohio.



POSITIVE DUPLICATION

**CINCINNATI**  
GRINDING WHEELS

A PRODUCTION-PROVED PRODUCT OF THE CINCINNATI MILLING MACHINE CO.

\* Trade Mark Reg. U. S. Pat. Off.

For More Information Write No. 259 on Inquiry Card—Page 32

FEBRUARY 16, 1959

143

# Office Equipment and Supplies

## Selecting a Time Clock

RECORDS REQUIRED by federal and state laws have made it mandatory for employers to have sufficient time records. Modern time clocks ease this record-keeping load and are designed to keep indisputable records of two basic procedures: payroll—pay based on number of hours worked; and job-cost—based upon individual job production time. Within these two classifications there are innumerable variations.

According to the Cincinnati Time Recorder Co., Cinn., Ohio there are four major factors which govern the selection of a time clock: (1) the number of employees; (2) the payroll period; (3) the usage, whether payroll, job cost, or a combination; and (4) the layout of the factory or office.

**Number of employees**—A clock should usually be provided for each 50 employees.

**Payroll period**—Weekly, bi-weekly and semi-monthly periods can be covered by a single time card per employee. For monthly pay periods two cards will be necessary since size limitations, based on convenience and information required, are at the maximum for a semi-monthly period.

**Layout of factory or office**—Clocks for hourly rated employees are placed as close as possible to the main entrance. Clocks for job time operations are located as close to the work as possible.

In multi-floor buildings clocks should be located on each floor although the number of employees per floor may be less than 50. This provides the most accurate method of determining when the employee actually entered and left his particular part of the plant. This same idea is also used for companies with several scattered buildings: Clocks are mounted in each building.

In some new one-floor factories there are long expanses between the entrance and the employee's place or work. If this distance is more than 75 feet, clocks can be located within each department. Some plants working more than one shift provide completely separate entrances and exits. Clocks are then located at both places. Others use two time clocks at the same entrance. One records the incoming shift and the other the outgoing shift.

Since the single major purpose of a time clock is to provide an ironclad printed record, much attention has been devoted to devising clocks coupled with time cards that will simplify the record-keeping procedure.

The major differences in clocks may be summarized as follows:

One versatile style will automatically print up, down, or across the time card. Irregular registrations can be made in red, and it can be adapted to any payroll time card. There are 16 to 22 spaces per day per card. This fits the needs of a three shift operation. Card positioning can be made to any minute change. This is fully automatic, and can be used where employees number

up to 100 in the same location.

A second fully automatic model records uneven shifts where employees are coming and going at all times. Cards for these irregular job duration periods are clipped each time a registration is made. This positions the card for the next registration. It also prevents overprinting and will register even though the employee may work only a few minutes. This same clock can be used for job costing since it has the maximum number of printing wheels—five—now available. Most clocks have three. Only with four or five wheels can the month and year be recorded in addition to the time. This clock can be used for as few as 3 or as many as 50 employees.

A third model is used for payrolls of 10 to 25 employees. They line up cards with a red indicator to secure the time stamp. Overprints are possible. This is an electric fully automatic model—as the card is inserted registrations are made automatically. This can also be employed in job work. Cards are changed to match the pay period.

A fourth model is the job cost recorder. This is electrically operated, but registrations are made manually by pushing down a lever. Primarily for job time registrations, it can be used for payrolls of 3 to 15 employees. If the pay period is changed, cards are changed.

All these styles may be equipped with a signal attachment to ring buzzers or bells at designated times. This is used to indicate the beginning and end of work or rest periods.

Final selection of a time clock depends on your own particular needs. There is one to fit—and it can be "fitting" insurance against inaccurate records.

For More Information Write No. 260

on Inquiry Card—Page 32→

PURCHASING

NO. 44 FACSIMILE CARD USED WITH STONE PAYROLL RECORDER

NAME Randall Allen PAY END May 1, 1949						
REG TIME HRS.	39 3/4	RATE 1.30 AMT. 51.68				
OVERTIME HRS.	6	1.95 11.70				
W. T.	7.50					
O. D.	63					
INS.						
HOSP.	60					
OTHR.						
TOTAL EARNINGS. 63.38						
TOTAL DEDUCTIONS. 8.73						
AMOUNT DUE 54.65						
Date	MORNING	AFTERNOON	OVERTIME	Date		
	IN	OUT	IN		OUT	
1	8 7 59	8 12 03	8 1 00	8 5 05	8	
2	8 7 50	8 11 56	8 12 59	8 2 07	8	
3	8 7 51	8 12 01	8 12 50	8 2 58	8 5 29	8 7 35

Sample time card used with horizontally registering time clock.



John C. Tyler, Chairman, and Thomas E. Leavey, President, Farmers Insurance Group, the largest automobile casualty insurance company west of Chicago, and a Moore customer for over 20 years.

## "Moore forms help us keep on top of our premium billing"

CONTROL GIVES FARMERS INSURANCE EFFICIENT PAPERWORK SYSTEMS

The Farmers Insurance Group sends out an average of 16,000 premium notices every day. The job is simplified and speeded by a new automated system which has saved 22,400 man-hours a year. Now the company's billing operations are handled in one office instead of several. Records are centralized. Auditing is easier and faster. All notices are mailed on schedule.

At the heart of the system is the premium notice form, especially designed for use with a data processing machine. Information stored in punched cards and transferred to tape is printed automatically on the notice blank. The name and address of the insured, policy number, amount, due date and many other variables are included. More than 1800 forms are

processed in an hour; each one provides the notice, reminder notices and office copies simultaneously, free of transcribing errors. The form is a five-part Moore Speediflo—the company's control in print.

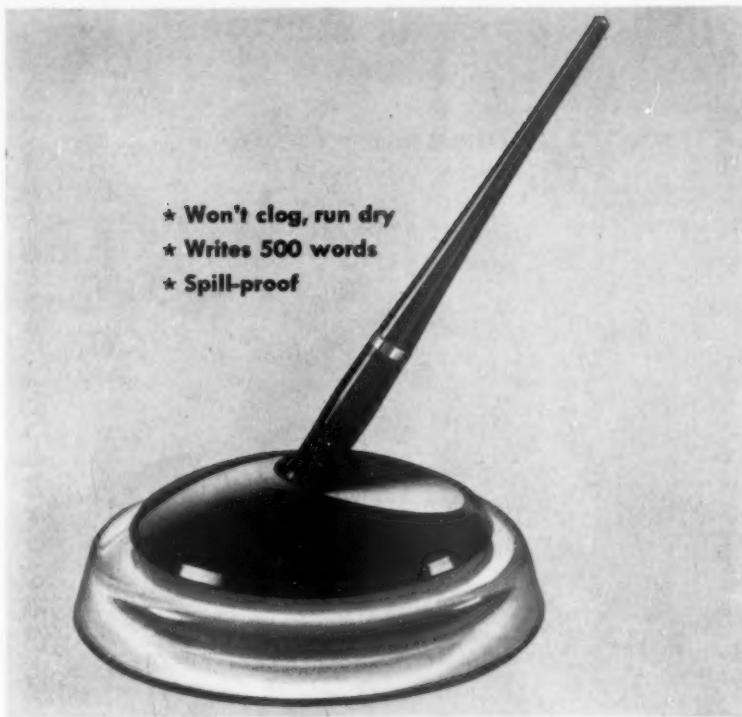
The Moore man helped design this Automated Data Processing System (ADP) and the forms scientifically tailored to it. For detailed information on similar systems for control, write the Moore office nearest you.

MOORE BUSINESS FORMS, INC., Niagara Falls, N. Y.; Denton, Texas; Emeryville, Calif. Over 300 offices and factories throughout U. S., Canada, Mexico, Caribbean, Central America.



Build control with

# MOORE BUSINESS FORMS



## Fill this desk set only two times a year!

The ingenious Esterbrook FEED-MATIC\* Desk Set actually *seals in* a six-month supply of ink against evaporation and dust—releases fresh ink to the pen *as you need it*.

Imagine! No constant messy maintenance...no more clogged dry pens! And, there are 32 *instantly* replaceable Esterbrook points to choose from. Black, colors—\$4.50.†

**There's a precision-made Esterbrook for every business need:**



### Esterbrook DESKMASTER\* fountain pen desk set

Fastest selling desk set in America—Esterbrook's precision fountain pen in a lustrous, porcelain base. Compact, efficient. In popular colors and black (Model 112).

Black, \$3.75†



### Esterbrook RECORDER\* ball point desk set

Writes 6 months in normal office use—A truly dependable ball point! Comes in choice of ink colors, fine or medium point. Deluxe black, colors, \$3.95†

Black, \$2.95†

All desk sets available with chain and adhesive base for public counter use. Also doubles for use with two ink colors.

†List price per single unit. See your supplier for quotations.

# Esterbrook®

• T.M. The Esterbrook Pen Co.

**10-DAY FREE TRIAL**—Get one of these quality Esterbrook desk sets from your regular dealer. Use it 10 days. If you aren't completely satisfied, return it to your dealer with *no cost to you*.

For More Information Write No. 261 on Inquiry Card—Page 32

## Office Equipment



A new electronic device permits **telephone** conversations without holding the phone. Manufactured by **Kay-Townes Manufacturing Co.**, P.O. Box 593, Rome, Georgia, it allows all interested parties present to listen and talk. Portable and without wires, no installation is necessary. The unit can be purchased out-right and has a two-year battery life which is replaceable at any television or radio shop.

Write No. 40 on Inquiry Card—Page 32



A new **digital printer** which automatically prints digital data from high speed counting, timing, frequency measuring and data handling equipment has been revealed by **Computer Measurements Corporation**, 5528 Vineland Ave., North Hollywood, Calif. Known as the Model 400C, it has a number of optional features which broaden the area of application for digital printers. In addition to the options, it carries standard features designed to improve flexibility and reliability. Among them are parallel entry, unitized construction and elimination of stepping switches. The new unit is compatible with most makes of counting equipment.

Write No. 41 on Inquiry Card—Page 32

Now—electronic dictation comes of age  
through McGraw-Edison's inventive heritage!



## Take the mike...

see how the **new M-E VOICEWRITER**  
helps you break through the "time-barrier"  
to new success!

You'll take the mike . . . dictate . . . and suddenly you'll realize that electronic dictation has come of age . . . that any other dictating method is now old-fashioned!

You'll see how 70 years of experience in office correspondence . . . plus McGraw-Edison continuing research . . . have made this M-E VOICEWRITER the finest dictating instrument ever built. Its

features? All you would expect to find in the finest . . . and then some!

Think we've exaggerated? We offer you a friendly challenge to "take the mike"—see for yourself! Contact your nearby Edison VOICEWRITER representative now . . . or write us at the address below. Once you take the mike . . . *your* talk will be our best sales talk!

A product of Thomas A. Edison Industries, McGraw-Edison Co.  
West Orange, N. J. In Canada: 32 Front St. W., Toronto, Ont.



For More Information Write No. 262 on Inquiry Card—Page 32

## Office Equipment

*This portfolio shows you  
how to benefit from modular furniture—*



*If you want your office  
geared to future operations  
request a copy of this  
portfolio . . . ask for  
number 144. Then, get  
in touch with your nearby  
authorized Peerless  
Distributor. You'll find  
he's a good man to know.*

**PEERLESS**  
STEEL EQUIPMENT CO.  
6600 Hesbrook Ave., Philadelphia 11, Pa.  
NEW YORK CHICAGO HOUSTON LOS ANGELES

Modulettes open the way to new frontiers in office furniture arrangements—and office efficiency.

Peerless Modulettes are numerous modular units that can be combined and arranged in seemingly endless groupings. Office furniture groups that can assume *your* individual system of functional operation.

Valuable space can be conserved. Office operation costs can be reduced.

For More Information Write No. 263 on Inquiry Card—Page 32

148

A new, low-cost system of **punched-card data processing** specially designed for small business is described in a folder just published by **Remington Rand Univac Division of Sperry Rand Corporation**. The new system makes it possible for small companies, or branches and plants of larger ones, to machine process statistical work.

Write No. 42 on Inquiry Card—Page 32



An entirely new electronic system was announced by Stromberg Time Corporation, a subsidiary of **General Time Corporation, Hartford, Conn.** Called the Transacter System, the equipment functions in the pre-input stage of any **data processing system**, making it possible to collect information at remote sources and feed it instantaneously to central data processing centers. Designed to be completely compatible with other business machine and data processing equipment the new system eliminates the need for paperwork and clerical operations between the source of a transaction and the data processing center.

Write No. 43 on Inquiry Card—Page 32

**Art Metal Construction Company, 369 Broadway, New York 13, N. Y.** has just released a **96-page book** on practical suggestions for improving on office routine. Called, "Office Standards and Planning Book," it points out cost-cutting answers to problems faced by many purchasing agents every day.

Write No. 44 on Inquiry Card—Page 32

PURCHASING

With IBM equipment and IBM punched cards, you have a unique data processing partnership. For behind this partnership is the pattern of IBM research, daily testing, the finest technical know-how, supported by more than forty years of experience. When you insist on IBM punched cards, you are guaranteed performance based on production techniques that are the models of precision engineering. The result: Your business has the finest in data processing.

**IBM**<sup>®</sup> SUPPLIES

**partners in precision**

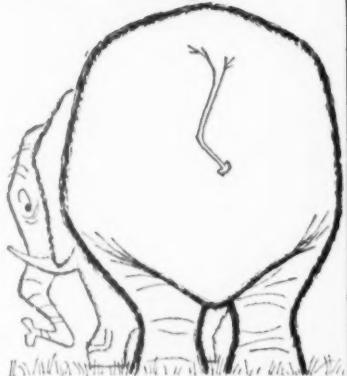


For More Information Write No. 264 on Inquiry Card—Page 32

FEBRUARY 16, 1959

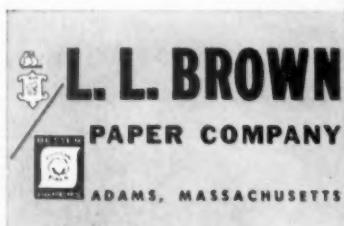
149

# L.L.B. ← for elephant-size strength



Does your business require records that must last through the years . . . or books that must stand up to daily thumbing, wear and tear? You can't beat L. L. Brown's RECORD PAPERS for strength and durability . . . papers that are finer because they're naturally whiter . . . papers which in the long run will actually save you money. Ask your stationer or printer about L. L. Brown papers.

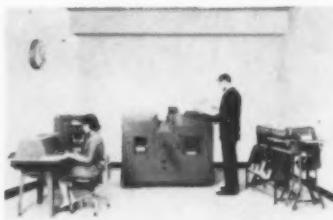
"The quality which has  
earned its reputation"



For More Information Write No. 265  
on Inquiry Card—Page 32

150

## Office Equipment



A new, low-cost system of punched-card data processing specially designed for small business has just been announced by Remington Rand Univac Division of Sperry Rand Corporation. The new system makes it possible for small companies, or branches and plants of larger ones, to machine process such jobs as: production control, inventory control and various analyses.

Write No. 45 on Inquiry Card—Page 32

How office copying can save money and increase efficiency in purchasing is described in a new 16-page illustrated booklet now available from Eastman Kodak Company, Rochester 4, N. Y. Entitled, "4 Versatile Office Time-Savers," the publication tells how organizations are saving time and money with modern office copying systems.

Write No. 46 on Inquiry Card—Page 32



A pen that dispenses dots of rubber base paste instead of ink is now on the market. Available from Distributors East, 625 W. 140th St., New York 31, N.Y. the pen comes filled and ready to use. A special plastic squeeze bottle refills the pen in seconds.

Write No. 47 on Inquiry Card—Page 32



FOR ALL  
ERASING...

*Take your  
Pick!*

### KLENZO-33 WITH AND WITHOUT BRUSH

Famous Klenzo quality in convenient wood-casing. Sharpens to "needle point" for ballpoint, typewriter and ink work.



### KLENZO WITH AND WITHOUT BRUSH

The standard for erasing. Paper wrapped to permit quick, economical repointing.

A Klenzo erases equally good wrapped in paper or cased in wood.

AT BETTER STATIONERS EVERYWHERE

Send 10c for twin samples naming this publication.

**blaisdell**

PENCIL COMPANY  
BETHAYRES, PA.

For More Information Write No. 266  
on Inquiry Card—Page 32

PURCHASING



## RALSTON PURINA COMPANY

"SERVING ANIMAL AGRICULTURE WITH PURINA CHOWS."

First National Bank in St. Louis ST. LOUIS, MISSOURI		RALSTON PURINA COMPANY	
TO THE ORDER OF		ST. LOUIS, MISSOURI, AUG 12, 1958	
J C ADAMS INC 176 NINTH AVE ART TOWN, U.S.A.		No. 2405	
12345		\$225.00	
7/23/58		RALSTON PURINA COMPANY	
TYPE ANY ITEM		H.C. Pierce PURINA FARM, INC.	
AMOUNT 225.00		AMOUNT 225.00	
DISCOUNT 25.00		DISCOUNT 25.00	
NET PAY 225.00		NET PAY 225.00	
15.00		15.00	

**"NCR PAPER saves its entire yearly cost every six months by reducing operating expenses."**

—RALSTON PURINA COMPANY, St. Louis, Mo.  
"A leading producer of feeds."

"We use NCR (No Carbon Required) Paper for 18 different business forms. While the price is often more than for forms with carbon, the advantages have a money value that offsets, many times, any increase in price.

"Our office efficiency is improved because with these 18 forms carbon paper is eliminated. We do not have to insert or remove carbons, nor take the time to collate originals and copies. NCR Paper forms are made so that we pick up

originals and copies as a unit. All this saves valuable time and expedites our paper work. And our employees prefer the cleanliness of NCR Paper.

"We estimate NCR Paper returns its yearly cost every six months in reduced operating expenses."

*Lewis B. Stuart*

Lewis B. Stuart, Executive Vice President,  
Ralston Purina Company

**ASK YOUR FORMS SUPPLIER ABOUT NCR PAPER**

ANOTHER PRODUCT OF  
**THE NATIONAL CASH REGISTER COMPANY, DAYTON 9, OHIO**  
1,039 OFFICES IN 121 COUNTRIES • 75 YEARS OF HELPING BUSINESS SAVE MONEY

FEBRUARY 16, 1959

For More Information Write No. 267 on Inquiry Card—Page 32

**RALSTON PURINA COMPANY**  
saves time and money with  
these NCR Paper forms:

- Voucher Checks
- Voucher Registers
- Statements
- Invoices
- Purchase Orders
- Bills of Lading
- Remittance Advices
- Purchased Stock
- Payroll Checks
- Payroll Journal
- Payroll Earnings Records
- Analysis Report
- Shipping Instructions
- Advertising Request
- Selling Plan Report
- Re-order Notice
- Material Requisition
- Soybean Analysis Report

\* TRADEMARK REG. U. S. PAT. OFF.

*National*  
**ELIMINATES  
CARBON PAPER**

# KOH-I-NOOR

## Precision-Matched Instruments

Koh-I-Noor offers draftsmen an important new concept—a comprehensive line of instruments and accessories meticulously matched to achieve a new high in professional performance.

ADAPTO-  
CLUTCH  
LEAD  
HOLDER  
and  
EJECTOMATIC  
LEAD DISPENSER

Two Koh-I-Noor products designed to work together for greater convenience. Lead holder's non-slip clutch takes all 17 degrees of Koh-I-Noor lead. Ejectomatic Dispenser feeds lead to holder without need to touch it.

### RAPIDOGRAPH NON-CLOGGING "TECHNICAL" FOUNTAIN PEN

A smoothly performing ruling, lettering and tracing pen that uses India or regular ink with equal facility. A tremendously convenient, time-saving, reliable instrument. Fully guaranteed. In five precision line widths:



Write for descriptive literature.

by  
**KOH-I-NOOR**  
of course

Bloomsbury 4, New Jersey

For More Information Write No. 268  
on Inquiry Card—Page 32

152

## Office Equipment



An economical **electric adding machine** has been introduced by **The General-Gilbert Corp.**, 150 Broadway, New York 38, N.Y. The new heavy-duty line includes three models, each designed to take only 8" x 11" of desk space. Control keys are electrified to eliminate extra strokes and concave key faces to keep fingers from slipping.

Write No. 48 on Inquiry Card—Page 32

A new **catalog** has been published showing over 350 products in stencil duplicating. Published by the manufacturer, **Milo Hard-  
ing Company**, 500 Monterey Pass Road, Monterey Park, Calif., the illustrated 28-page catalog includes inks, stencils, paste and liquid ink duplicators and other stencil art supplies.

Write No. 49 on Inquiry Card—Page 32



The largest image area available in **A. B. Dick offset equipment** is the principal feature of their new model 360. Duplicating area of the new machine is 10 1/4" x 16 1/2". The machine will duplicate on impression paper ranging in size from 3" x 5" to 11" x 17". The new model can produce up to 9000 copies per hour.

Write No. 50 on Inquiry Card—Page 32

A carbon paper which will not curl, slip or smudge has just been announced by the Roytype Department of the **Royal McBee Corporation**, Port Chester, New York. A clean, hard-surfaced paper, it is especially suited for electric typing. The bottom portion of the carbon box is designed to fit neatly into the stationery compartment of the desk. A special cut-out enables the typist to pick up exactly the number of sheets she requires without disturbing the remainder.

Write No. 51 on Inquiry Card—Page 32

**Oxford Paper Company**, 230 Park Avenue, New York 17, N.Y. recently launched its new line of **coated papers**. Called the North Star, the new line, comprising both letterpress and offset papers, in high-gloss and dull finish, is the first complete line of top-quality coated papers produced by the trailing blade process. The new paper will be distributed through stocking merchants.

Write No. 52 on Inquiry Card—Page 32

### ARE YOUR PAPERS PLAYING...



### HIDE AND SEEK?

Filing is important only if the **finding** is easy. Can you *always* put your hand on the letter, invoice, order, report or other paper you want, *instantly*? Are your files neat, compact, space saving? Your Stationer will be glad to explain the advantages of **ACCO**-filing to keep your records safe, and finding quick. See him now!

### "ACCO BOUND PAPERS ARE SAFE PAPERS"

#### ACCO PRODUCTS

Division of NATSER Corporation

Ogdensburg • New York

In Canada: Acco Canadian Co., Ltd., Toronto

For More Information Write No. 269  
on Inquiry Card—Page 32

PURCHASING



A permanent wall chart that permits changes and updating in minutes. A product of **The Chartmakers Inc.**, 480 Lexington Avenue, New York, N. Y., it can be purchased with a choice of materials for graph or curves showing trends, bar charts for comparative figures and organization charts. A permanent grid allowing for nearly any type of chart helps align boxes on the organization chart and helps plot figures for bars and graphs.

Write No. 53 on Inquiry Card—Page 32

A new product line—**movable interior partitions**—has just been introduced by **Penn Metal Company, Inc.**, Parkersburg, West Virginia. Pennmetal interiors are intended for executive, general and factory offices. They are designed to be readily demountable for re-erection in a new location. The paneled surfaces are flush from floor to ceiling or cornice, with no visible posts extending beyond the panel surfaces. Thickness of the finished partition is three inches.

Write No. 54 on Inquiry Card—Page 32



"I think I may be able to give you a small order."

FEBRUARY 16, 1959

New!  
Relaxing  
Massage  
in the  
President's  
Chair



**HARTER MODEL 65 EXECUTIVE POSTURE CHAIR**

Tensions . . decisions . . deadlines got you all tied up in knots? Just lean back in a Harter 65 Executive Chair, select the Swedish massage action you prefer and *relax*. Cool, extra-deep, molded foam rubber cushions in seat back and arms transmit massage, gently relieving tensions all over. In a few minutes return to your work refreshed and alert. The bigger your job, the more you'll appreciate this chair.

With the massage turned off, you have the aristocrat of all executive posture chairs. Five precise controls fit the 65 to you. In the lithe new base, in upholsteries, in metal finishes, nothing has been spared to make the Harter 65 the finest.

Write for literature—we'll send name of your nearest Harter dealer.

HARTER CORPORATION, 229 PRAIRIE, STURGIS, MICHIGAN



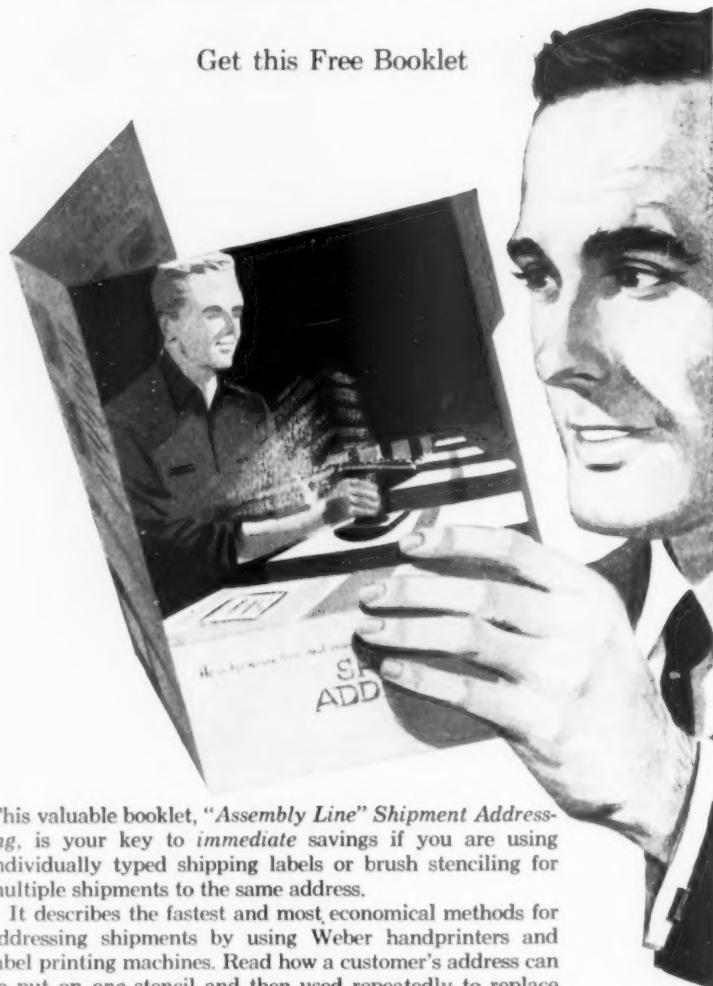
**HARTER**

**POSTURE  
CHAIRS**

For More Information Write No. 270 on Inquiry Card—Page 32

# CUT SHIPMENT ADDRESSING COSTS DRASTICALLY

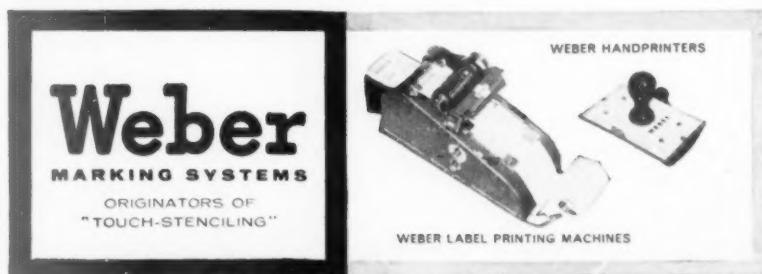
Get this Free Booklet



This valuable booklet, "Assembly Line" Shipment Addressing, is your key to *immediate* savings if you are using individually typed shipping labels or brush stenciling for multiple shipments to the same address.

It describes the fastest and most economical methods for addressing shipments by using Weber handprinters and label printing machines. Read how a customer's address can be put on *one* stencil and then used repeatedly to replace hours of typing individual labels—see how you can save money without making a large investment or changing your present routine.

Get the facts—learn how you can cut shipping costs. Write on your letterhead for a copy of "Assembly Line" Shipment Addressing. WEBER MARKING SYSTEMS, Division of Weber Addressing Machine Co., Inc. Weber Industrial Park, Mount Prospect, Ill. Dept. 22-B



For More Information Write No. 271 on Inquiry Card—Page 32

## Office Equipment



A new **water cooler** that fits flush against the wall and eliminates unsightly exposed plumbing has been introduced by the **Westinghouse Electric Corporation**. The new cooler design allows for a standard trap with slip type fittings to be installed inside the cooler cabinet. Other features include a straight-through drain with no bends, a high back-splasher that protects against wall-spotting, and a dual drink control.

Write No. 55 on Inquiry Card—Page 32



A redesigned **IBM electric typewriter** features a longer carriage and writing line for increased typing versatility. Other new features of the machine include: a mechanism for noise reduction and virtual elimination of stress and shock in carriage returns and tabulations; a touch control which enables the operator to adjust the keyboard response to individual preference; and a carbon ribbon feed to achieve book-style printing. The machines are available in six different colors.

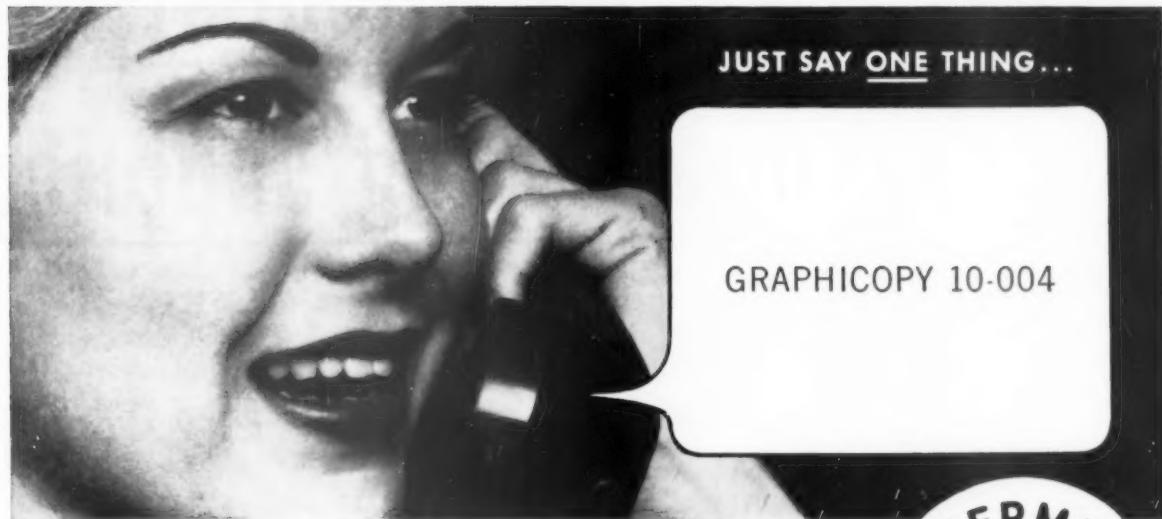
Write No. 56 on Inquiry Card—Page 32

# New easy way to order $8\frac{1}{2} \times 11$ paper



INSTEAD OF SAYING  
SIX THINGS...

HAMMERMILL BOND  
SUBSTANCE 20  
 $8\frac{1}{2}$  BY 11  
WHITE  
BOND FINISH  
GRAIN LONG



JUST SAY ONE THING...

GRAPHICOPY 10-004

ASK YOUR HAMMERMILL SUPPLIER for your free Graphicopy Paper Selection Guide, showing 181 items in 19 grades, including Hammermill Bond. You can order all your  $8\frac{1}{2}$  by 11 and  $8\frac{1}{2}$  by 14 paper by number with one phone call. There's a Hammermill Graphicopy Paper for nearly every printing, duplicating and office need. Hammermill Paper Company, Erie, Pennsylvania.



**See your Webster  
carbon and ribbon  
salesman**

**...your source**

**for the best**

**duplicating supplies**

**available!**



**Make it clear you want**



## They're all made by Webster!

When a salesman represents the complete line of duplicating supplies made by F. S. Webster Company, you can be sure he represents top quality. His wide range of products saves you time, trouble and money. Not only does he represent "one-stop" buying for you, but he also has at his call a qualified duplicating sales engineer to advise him of your needs. Your salesman's products and services are yours for the asking.

### WEBSTER MULTIKOPY DURAMETRIC

The carbon paper that has the edge over every other brand. The exclusive scaled edge automatically assures neater, better spaced typing the first time. It's uncoated for cleaner letters, cleaner fingers and cleaner carbon handling. Even in extreme temperatures, it remains completely curl-free. You get fine performance and long service from every sheet.

### WEBSTER SILK STAR TYPEWRITER RIBBONS

No higher quality ribbon on the market. With Silk Star there are fewer ribbon changes, sharper impressions and longer service. Silk Star Ribbons are made of the finest quality silk so sheer that 18 yards fit the standard spool that holds only 12 yards of cotton. Strong and three times longer wearing, too. Perfect typing companion for Webster MULTIKOPY Durametric.



**Your stationery salesman  
is your source for  
these other Webster Quality  
Duplicating Products:**

**CARBON PAPERS** for all office applications in eight grades. Typewriter, pencil, pen, transfer, blueprint, billing in a variety of weights and finishes.

**SPIRIT DUPLICATING PAPERS  
AND MASTER UNITS** for both spirit and master duplicating units.

**CARBON PAPER RIBBONS** for correspondence, spirit duplicating, photo and offset work.

**OFFICE MACHINE RIBBONS** for most types of adding, accounting, tabulating and addressing machines.

**TYPEWRITER RIBBONS** in cotton, nylon and silk for all Typewriter makes.

For correspondence, record, offset, hectograph, photo blueprint.

**CARBON PAPER ROLLS** for Teletype, autographic Register, Elliott-Fisher and adding machines.

**plus**

**ACCESSORIES:** Type Cleaner, Instrument Oil, Duplicating Fluid, Hand Cleansers

# Webster

*at leading stationers  
everywhere*

## **Association News**

### **1959 NAPA Convention in New York, June 14-17**



**David S. Gibson, general chairman.**

**T**HE 44th Annual Convention of the National Association of Purchasing Agents will be held in New York, June 14 through 17, at the Waldorf Astoria Hotel.

Hosted by the New York chapter of the NAPA, this year's convention has a timely theme: "Practical Purchasing in the Space Age."

Under the capable direction of David S. Gibson, convention general chairman, and Gailon Fordyce, program chairman, the convention promises to be one of the best ever presented. A tentative program has already been prepared and the final version will be published shortly. A preview of the fact-filled program indicates that purchasing agents who attend the convention will gather much valuable information to assist them in the space age.

#### **The Men Involved**

Convention general chairman Gibson is well known in the purchasing profession. He was one of the featured speakers at last year's convention in Chicago. He is a past president of the Purchasing Agents Association of New York, former chairman of the educational committee for the 8th



**Gailon Fordyce, program chairman.**

District, and has held many chairmanships within the New York association. He is now the national director of the New York association and the vice president in charge of purchases for Worthington Corp.

Program chairman Fordyce is also prominent in the purchasing field. He appeared on the program in Chicago, is active in the education of purchasing agents, and has been a guest speaker on

purchasing for the American Management Association. He is now the assistant director of purchases for American Cyanamid Company and the second vice president of the Purchasing Agents Association of New York.

Assisting in the formulation and operation of the convention are these committee chairmen: William F. Rae, Jr., The Mennen Company, general convention vice chairman; Edward M. Krech, J. M. Huber Corp., early bird's dinner and banquet; John F. Snedeker, Binney & Smith, Inc., entertainment and dance; Robert J. Unger, Dragon Cement Co., Inform-a-Show; Anne D. Repko, Austenal, Inc., ladies program; Donald T. Keliher, United States Metals Refining Co., press and publicity; Harold W. MacIntosh, L. O. Koven & Bro., Inc., reception; C. H. Reilly, Jr., Port of N.Y. Authority, service; and Donald H. Lyons, Johns Manville Corp., program vice chairman.

Also working with the above are F. Stan Romanse, Babcock & Wilcox Co., president of the Purchasing Agents Association of New York, and Robert H. A. Davis, executive secretary of the New York Association.

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**PURCHASING**



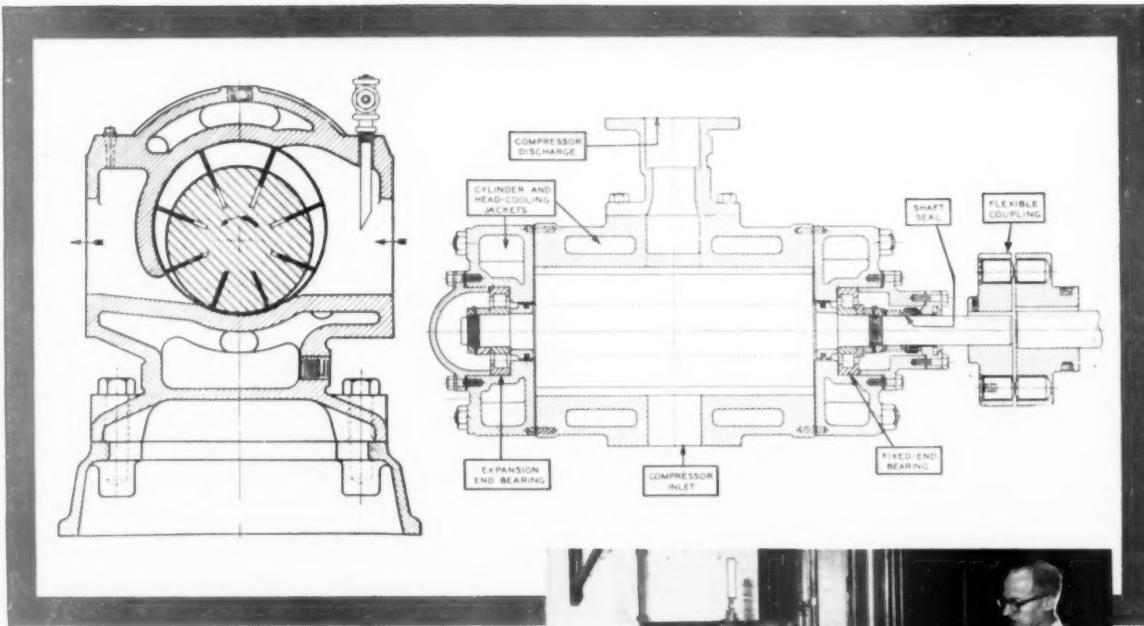
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Hard service never affected this Fuller rotary's original output—230 cfm. of air at 90 lb. G., reports Mr. Schott, chief engineer, Thomas C. Wilson, Inc., Long Island City, N.Y.

## FULLER ROTARY COMPRESSOR RUNS 13 YEARS WITHOUT DOWNTIME



A Fuller rotary at Thomas C. Wilson, Inc. got its first maintenance shutdown recently, for renewal of roller bearings and rotor vanes—after running without downtime since 1945.

**4 years of 24-hour service.** The Wilson plant makes tube cleaning equipment, tube expanders and portable pneumatic tools, and so makes heavy daily demands on shop air. For the first four years, three-shift operation kept the Fuller rotary running round the clock. Since 1949, it's been working eight-hour shifts. **Simple design means trouble-free service.** Besides

bearings, the only moving parts in a Fuller vane-type rotary compressor are the cylindrical rotor and the blades. These compensate for wear automatically. Cylinder head slips off, permitting blade and bearing inspection in a matter of minutes.

**Compact and vibration-free.** Direct-drive system saves space. Simple, rugged design gives constant service without extensive supervision. Thus, Fuller rotaries can be installed out-of-the-way—on upper floor, on balconies, in basement corners, using low-cost, light-weight foundations.

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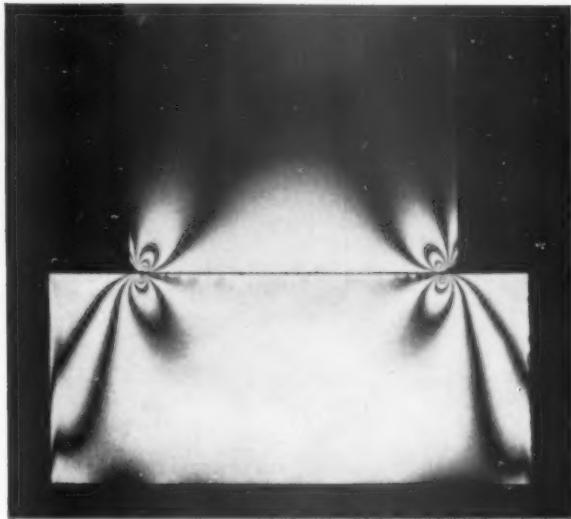
PIONEERS OF HIGH-EFFICIENCY VANE TYPE ROTARY COMPRESSORS SINCE 1930

## BEARING BRIEFINGS



One in a series of technical reports by Bower

## ROLLER BEARING LIFE AND CAPACITY LINKED TO STRESS DISTRIBUTION



These reproductions of photoelastic studies contain important evidence for every engineer and designer concerned with the performance and selection of roller bearings. In these photographs, the alternate dark and light areas, called fringes, indicate not only the magnitude of stress but also the stress distribution. The photographs were taken by Bower Research Engineers during a study of stress distribution in roller bearings.

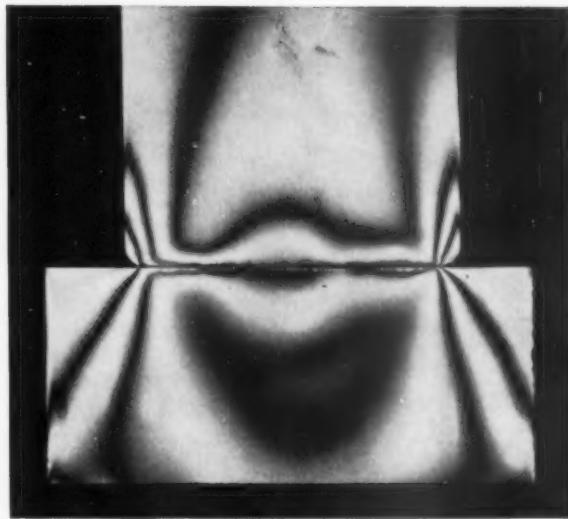
The subjects represent rollers and raceways of two roller bearings under identical loads. The illustration at the left shows a roller of conventional design. The illustration at the right shows a Bower "Profiled" roller. That is, the roller is precision ground with a large radius generated along the body of the roller—a predetermined and controlled distance from each end.

The conventional roller photo (left) clearly shows how, under load, stress concentration builds up in and near the

roller ends. This is called edge-loading. Such areas of concentrated stress are the breeding grounds for metal fatigue and eventual bearing failure.

In the photo of the "Profiled" roller (right) stress lines can be seen uniformly distributed across the whole length of the roller and raceway. There are no points of excessive stress concentration, consequently no starting points for early fatigue. Such a "Profiled" roller exhibits a great advantage in improved load carrying capacity, a most important bearing requirement.

Under actual operating conditions, Bower "Profiled" roller bearings show a considerably longer life at higher



speeds and under greater loads than conventional roller bearings.

Because of this, and of other Bower features to be discussed in later technical reports, we suggest that you consider the advantages of Bower bearings in satisfying your future bearing requirements.

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*Bower engineers are always available, should you desire assistance or advice on bearing problems. Where product design calls for tapered roller bearings or journal roller assemblies, Bower makes these also in a full range of types and sizes.*

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## Association News

### Management Night at Kalamazoo

A meeting of the Kalamazoo Valley Association of Purchasing Agents was held at the Hotel Harris with Vice President James Donahue of the Allen Electric & Equipment Company presiding.

H. P. Stratton of the Miller Lumber Company presented the business survey to the fifty members and guests attending the "Management Night" program. His findings indicate a slightly reduced business activity as compared with the report of three months ago, but it was pointed out that seasonal effect is shown here. It should be noted that this report as compared with one year ago shows a marked strengthening in order status, unemployment, inventories, and profit. It also indicates that vendors' prices are higher and deliveries extended as compared with one year ago.

The featured speaker, Rex Paxton, director of public relations, Sutherland Paper Company, presented his thoughts on "Good Public Relations in the Purchasing Profession."

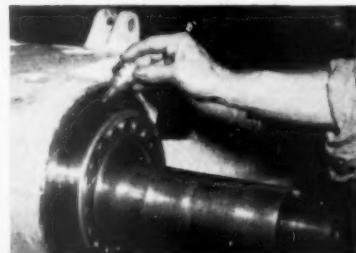
Mr. Paxton stated that the impression made by purchasing upon visitors is generally the impression that the visitor gains of the entire company. He also placed emphasis on the need for recognition of the purchasing function and its place on the modern management team. Since change is being shown at such a rapid rate and new products being developed and marketed that were unheard of even a few years ago, it must be a major responsibility of the purchasing department to seek out these new methods and materials for evaluation. Mr. Paxton closed his remarks on a note of optimism for both peace and prosperity in the years to come.

FOR MORE INFORMATION  
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PAGE 32

## NO PRESS FIT NEEDED WITH LOCTITE SEALANT

"We replace 9" bearings in less than an hour—and save \$155 each!"

Says David B. Cook, President  
Acme Road Machinery Co., Inc.  
Frankfort, New York



"Replacing 9-inch bearings in the jaws of a giant rock crusher once required days to bore the housing and build up weld metal for re-boring to a .0015" interference fit. Even then, placing the bearing took two men 3 or 4 hours.

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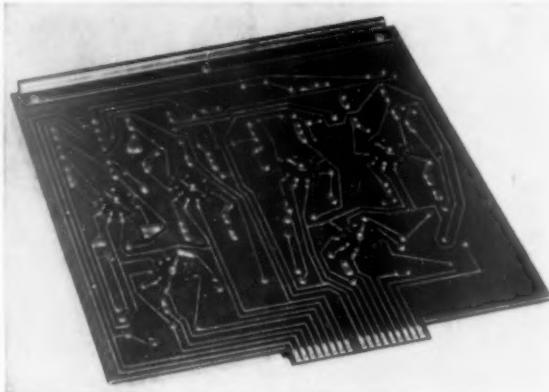
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## Heart of the best printed circuits— **CDF Di-Clad® LAMINATES**

Printed-circuit dependability begins at the base, and that's where CDF excels. Only CDF offers the combination of Teflon\* resin and glass fabric cloth for use under sustained temperatures of 180 C. In addition, CDF offers a full range of Di-Clad laminates to meet every known demand of printed circuitry. High foil-bond strengths withstand soldering heats, reduce assembly rejects. Full line of Di-Clad grades — glass fabric and paper-base — with Teflon\*, epoxy, and phenolic resins. Assembly costs go down when the job is done on CDF Di-Clads! Write for CDF Di-Clad Folder DC-58.

\*duPont trademark for its tetrafluoroethylene resin

## CDF PRODUCTS OF TEFLON

CDF produces an unequalled range of electromechanical parts of Teflon\* — such as small- and large-diameter thin-wall tubing, glass-fabric laminates, flexible insulating tapes, sheets, rods, tubes, and finished parts. Now also available: cementable Teflon in supported and unsupported forms; can be cemented to itself and to most other materials with commercial adhesives. If you have a potential use for a product made from unsupported or reinforced Teflon — from tapes to high-heat-resistant printed-circuit laminates — your CDF sales engineer is the man to call. Meanwhile, write for the new CDF Teflon Folders.

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Flexible insulating tapes for hand or automatic winding, made of glass-supported silicone rubber, silicone varnish, Micabond, with and without backings; and unsupported and glass-supported Teflon\*. Color identification — CDF tapes of Teflon are made in the standard identifying colors. Call your CDF sales engineer, or write for test samples.

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## DIAMOND VULCANIZED® FIBRE

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Known for over sixty years as the standard of quality in fibre, Diamond® Vulcanized Fibre is made in many grades (bone, fish-paper, trunk, commercial, built-up) and is available in sheets, rods, tubes, strips, rolls, fabricated parts, and formed specialties. Write for Catalog DVF-58.

**LOW-COST VULCOID is Resin-impregnated Vulcanized Fibre.** Vulcoid (made only by CDF) is an intermediate insulation material. It combines the desirable arc-resistance and mechanical properties of vulcanized fibre with many of the good qualities of a phenolic laminate. UL-approved as Class A insulation in electrical equipment. Bearing applications requiring high precision have been successful with Vulcoid. Write for Bulletin V-58.



## CDF CELORON® MOLDED PRODUCTS

Celoron is a molded-macerated and/or combination laminated base bonded with phenolic resins. High strength, long life, and low cost are the characteristics of molded electrical or mechanical parts made from CDF Celoron®. Its good electrical properties make Celoron an ideal molded insulator, while its high mechanical strength makes it an excellent material for gears, couplings, intricate loom parts, etc. Write for CDF Catalog C-58, or contact your nearest CDF sales engineer.

# PURCHASING NEWS



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CDF gives fast technical and delivery service on sheets, tubes, rods, or complete fabricated parts of Dilecto plastics. Write for Catalog D-55-C.

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## Association News

### Pittsburgh Ass'n Grants Two Scholarships

Two seniors at the University of Pittsburgh, School of Business Administration, Program in Industrial Purchasing, have been awarded scholarships by the Purchasing Agents Association of Pittsburgh.

Those receiving the scholarships are Joseph M. Stofan and John T. Connors, W. W. Crawford, director and chairman of the education committee, and director of purchases for the United States Steel Corp., will be industry advisor for the purpose of counsel and guidance for Mr. Connors. Joseph G. Smith, director of the association and Vice President of the Pittsburgh Steel Co. will be industry advisor for Mr. Stofan.

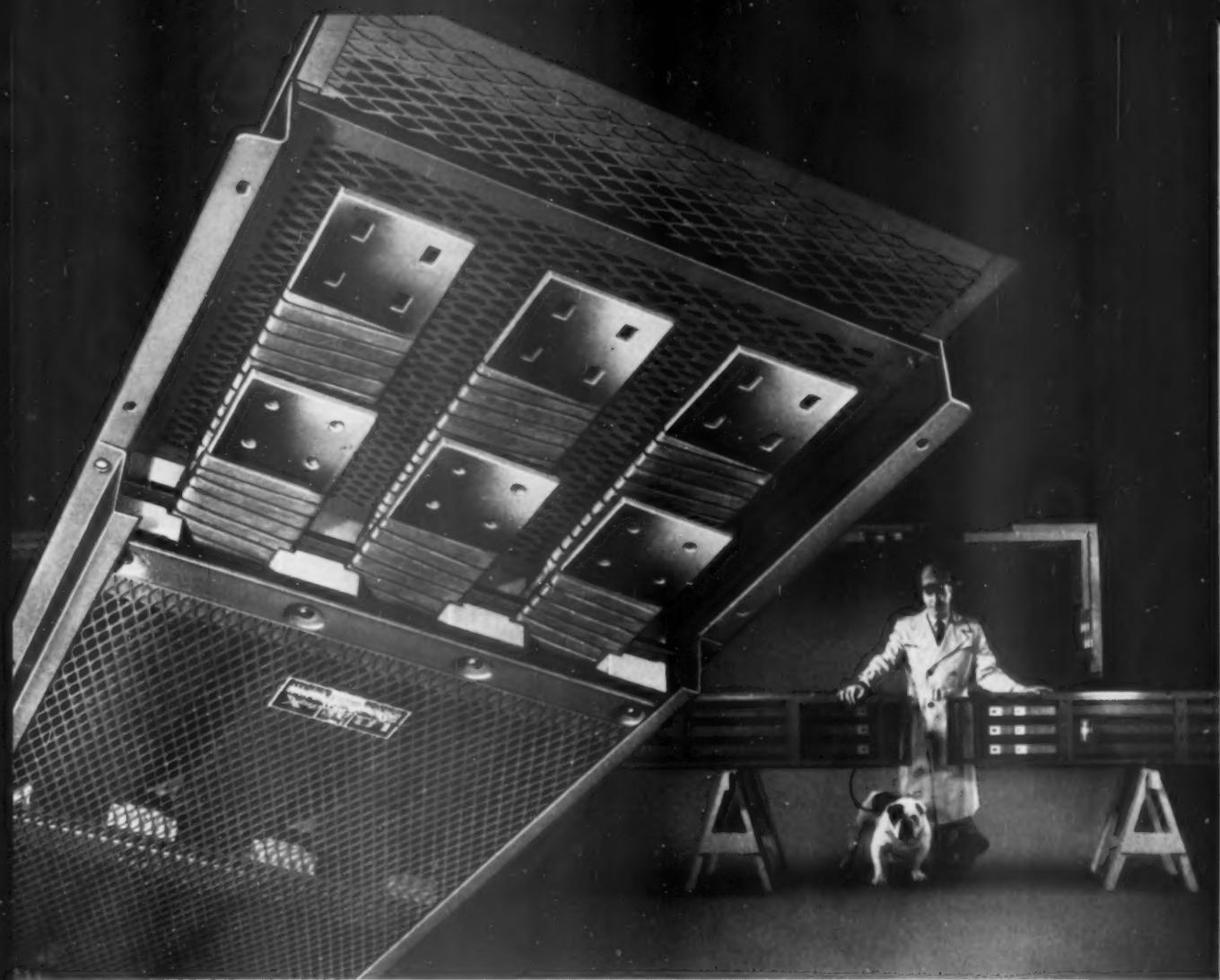
Both of the students selected are outstanding scholastically and are very active in extra curricular University activities.

The program of the University of Pittsburgh is a four year program in which the student obtains a strong ground work in liberal arts before specializing in courses designed to give him specific knowledge in his chosen field. Specialized training is provided by offering a series of courses in chemistry, physics, engineering, and business administration. Students satisfactorily completing the program are graduated with a degree in Business Administration (BBA) with a major in Industrial Sales and Purchasing.

### Washington Ass'n Engages DeRose

The Purchasing Agents Association of Washington, D. C. is giving free to its members the DeRose course in purchasing education. Len Larson, chairman of the education committee, was instrumental in getting the course arranged. Since the estimated cost of the course would normally run around six hundred dollars per person, getting it free is equivalent to a member receiving free dues for twenty-one years.

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PURCHASING



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*Lo-X Bus Duct assures lower balanced voltage drop . . . extra current carrying capacity*

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Republic Pig Iron Metallurgists have at their fingertips information on the latest processes and techniques

available for improving castings, and expanding their use and sale.

Frequently, these men are called upon to make routine foundry surveys. Their recommendations and suggestions often result in improved operations, increased production efficiency, and output at lower unit cost. Even a seemingly minor change in operation or procedure has resulted in recapturing business lost to other methods of fabrication.

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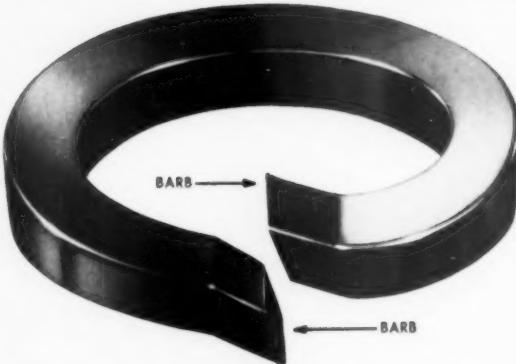
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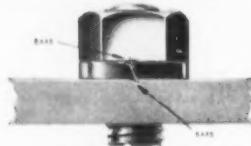
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This illustration shows how NON-LINK POSITIVE Lock Washers combine the advantages of tooth-type washers with the proven spring-power of regular lock washers. Arrows point to the teeth or "bars" in both the nut and the bearing surface. At the same time, the spring-power maintains the tension which assures a permanently tight assembly.

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## Association News

### Ann Arbor Sponsors Course

On March 21 the Ann Arbor Chapter of the National Association of Purchasing Agents, in conjunction with the University of Michigan speech department, will sponsor its second annual full day training conference in "Business Communications."

The program will feature small group discussions on conference methods, brain-storming, public speaking, persuasion, and how to participate in radio and television programs. There will be a luncheon program featuring a talk on "Materials Management." Persons interested in attending should contact the Ann Arbor Chapter by writing them in care of P. O. Box #347, Ann Arbor, Michigan.

### Denver P.A.'s Cover Standardization

A meeting of the Purchasing Agents Association of Denver held at the Brown Palace Hotel featured an excellent program put on by the standardization committee. Ken Huston and Lou Harder each gave a short talk on the "Aims and Rewards of Standardization." In addition, there was a panel discussion covering standardization or value analysis in large, medium, and small companies. The panel was made up of fellow members who have had some experience in this field.

### Metropolitan Purchasers Club Starts New Year

The Metropolitan Purchasers Club held its first meeting of the new year at the Chateau Restaurant. The evening was devoted to the second session of the association's purchasing course. The first half of the session, Scope of Purchasing Authority and Responsibility, was held prior to dinner. The second half, Position of Purchasing in the Organization, was completed after dinner.

**FINEST in bearing performance  
...BEST in bearing service  
YOURS with BCA**



**BCA PERFORMANCE**

Dependable performance over extra long life . . . endurance under the severest kind of service . . . are routine experience with users of BCA ball bearings. They are widely used as original equipment as well as for replacements in automotive, agricultural and industrial applications.

**BCA SERVICE**

A background of 60 years of specializing in the design and manufacture of quality ball bearings assures you of qualified technical advice and assistance . . . whatever the bearing application.

Working closely with engineers and manufacturers, BCA has frequently been able to contribute much to the solution of bearings problems, economies in production and improvement in equipment performance.

A unique flexibility in manufacturing permits BCA to give you immediate service and prompt, as-promised delivery . . . whatever your bearing requirements.

Bearings Company of America Division, Federal-Mogul-Bower Bearings, Inc., Lancaster, Pa.



**BEARINGS COMPANY OF AMERICA**  
DIVISION OF  
Federal-Mogul-Bower Bearings, Inc.



For More Information Write No. 285 on Inquiry Card—Page 32

**How a  
purchasing director's  
competitive analysis**



Purchasing Director Dave Beach (left) and Bay State distributor Sherwin Haskell (right) discuss chart showing test results.

When a *supplier* thinks up ways to make a product test more rigid, you've really got something in Value Analysis.

That's what happened when David D. Beach, Purchasing Director for Malleable Iron Fittings Co., Branford, Conn., decided to try to cut snagging wheel costs by eliminating the less efficient wheels among many different brands in use at M. I. F. He got the Engineering and Production Departments to set up a series of tests in which the comparative performances of 24" x 3" x 12" wheels from eight different manufacturers were to be rigorously compared over a period of several months.

Then Sherwin Haskell, of Bay State distributor, Perrigo, Inc., New Haven, suggested using a Time-Energy Analyzer to compute contact time and power consumption over the life of each wheel. This made it possible to compare *all* cost factors *accurately*.

## cut snagging costs at M.I.F.



Higher grinding pressures were used to increase production. This required a new Bay State specification that resulted in deeper cut, less wheel bounce and maximum wheel economy.

Results showed that the Bay State wheel turned in *the lowest cost per pound of metal removed*. So it became M. I. F.'s standard snagging wheel. And Sherwin Haskell had the satisfaction of knowing that he had helped cut costs for one of the biggest combined malleable iron and steel foundries doing custom work in the entire country.

Like all Bay State representatives, Haskell not only knows the answers to ordinary grinding problems, he often comes up with *unusual* cost-cutting ideas, too. Why not talk to *your* Bay State man? *Better grinding at lower cost—that is his business.*



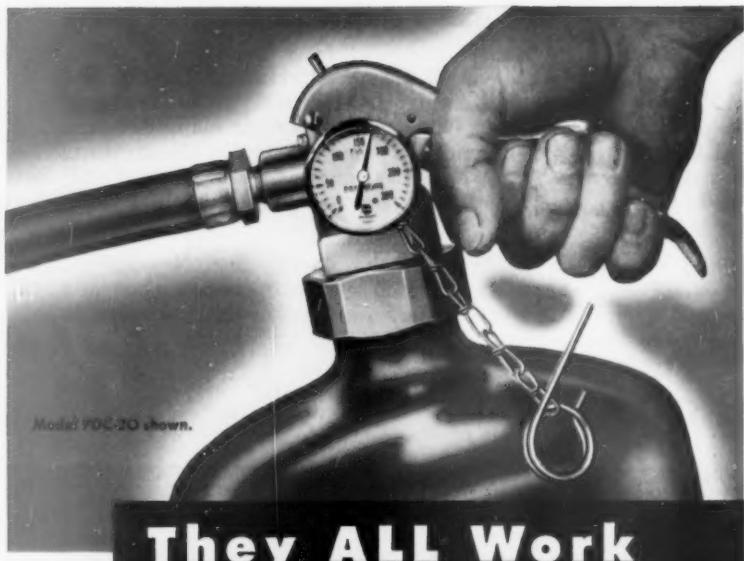
# BAY STATE ABRASIVES

Bay State Abrasive Products Co., Westboro, Massachusetts.

*In Canada:* Bay State Abrasive Products Co., (Canada) Ltd., Brantford, Ontario.

*Branch Offices:* Bristol, Conn., Chicago, Cleveland, Detroit, Pittsburgh. *Distributors:* All principal cities.

For More Information Write No. 286 on Inquiry Card—Page 32



## They ALL Work ALIKE!

*Standardize*

on **AMERICAN LAFRANCE**

### Squeeze-Grip EXTINGUISHERS

With only one method of extinguisher operation to bear in mind, *any* of your personnel, in *any* location, can pick up an American LaFrance squeeze-grip extinguisher and put it to work instantly! To operate just pull a pin, squeeze grip-levers together, direct discharge at the fire — a single procedure for all of these types.

With these and other American LaFrance squeeze-grip extinguishers, you can provide *split-second protection* against *all* classes of fire.

**AMERICAN  
LAFRANCE**

Your American LaFrance representative is fully qualified to help you select *exactly* the right equipment for your fire hazards. His recommendations are from the world's widest selection of fire protection equipment. For the full story, write for Catalog No. 571, *American LaFrance, Division of Sterling Precision Corporation, Elmira, N. Y.* In Canada, LaFrance Fire Engine and Foamite, Ltd., Toronto.



Pressurized  
Anti-Freeze  
in 2 1/2-gal. size

Pressurized  
Clear Water  
in 2 1/2-gal. size



**PROTECTION**

For More Information Write No. 287 on Inquiry Card—Page 32

## Association News

### New England Ass'n Sponsors Purchasing Course

The New England Purchasing Agents Association is sponsoring a basic purchasing course to be given by Northeastern University. The course presumes a working knowledge of purchasing, since it has been designed especially for members of the association, all of whom are engaged in purchasing work. However, aside from that, the course is comprehensive and touches all the fundamentals of the techniques of the procurement function.

Getting the course underway is the result of many hours of effort by the members of the association's education committee working with a faculty committee headed by Dean Albert E. Everett, director of the evening division, Northeastern University.

### British Columbia Round-Up

At the 295th General Meeting of the Purchasing Agents Association of British Columbia, three new members were introduced and each received a Roster of Members and an issue of "Purchasing In Western Canada" from President, C. A. Elkington.

The new members were: Harold Purdy, Vancouver Pacific Paper; George Cookshin, B.C. Electric Co. Ltd.; Ken Hawkins, Wilkinson Co. Ltd. Including the new members, the total of registered membership added up to 299. An orchid was given away by President C. A. Elkington for outstanding association participation. The man of the hour was none other than J. E. (Jack) Orange of Straits Towing Ltd., and well he deserves such recognition.

Another first at this outstanding meeting was the introduction of companies to the association gathering. Gerry Beach, purchasing agent for Crown Zellenbach Canada Ltd., outlined in detail his company's history and function, and gave a good coverage

(Please turn to page 178)

# Bearing Buying Guide

NO. 1



A REPORT ON FAFNIR BEARING DEVELOPMENTS AND DISTRIBUTION ACTIVITIES



## CONTACT OR SLINGER TYPE SEAL ... EACH HAS A PURPOSE

Fafnir-originated Wide Inner Ring Ball Bearings are available with either Plya-Seals (contact type) or Mechani-Seals (slinger type). Each type seal is designed for a particular kind of service.

For machines with slow to moderate speeds operating in a dust or moisture-laden atmosphere, bearings with Plya-Seals offer positive protection against contaminants. Such bearings are practically impervious to dust, lint, dirt or moisture. Their flared lip seals of resilient Buna N rubber-coated fabric ride in firm contact with ground outside surface of inner ring. Flared lip seals will not push in. Wide Inner Ring Bearings with Plya-Seals are used extensively throughout the food processing, textile, air-conditioning, mining and farm equipment industries.

For machines with moderate to fast speeds calling for frictionless seals, bearings with Mechani-Seals (frictionless, slinger type) meet exacting requirements. Close running clearance between two "dished" steel plates assures effective sealing. Rotating outer plate integral with inner ring acts as slinger to throw off contaminants.

Fafnir-originated Wide Inner Ring Bearings with self-locking, cam-type collar are incorporated in all Fafnir ball bearing power transmission units and are used for machine applications as well. They are available in two general types, the rigid and self-aligning. Where seals are involved, the Mechani-Seal type is interchangeable with the Plya-Seal type . . . both types are factory-lubricated for life of bearing.

## PRESSED STEEL TAKE-UP UNIT

This recent addition to the Fafnir Line of Power Transmission Units is a low-cost light-duty, pressed steel take-up unit, designed for adjustable shafts and belt tightening devices where extra weight and capacity are not needed. Available in two basic sizes covering eight different shaft dimensions from  $1\frac{3}{16}$ " through  $1\frac{1}{4}$ ", the new unit is adaptable to either guide-type or bolt-type methods of mounting. It can accommodate misalignment during take-up adjustment. The extended inner



ring type of bearing is equipped with Plya-Seals and the Fafnir originated self-locking collar. Pre-lubricated, the bearing needs no in-service attention.

**FAFNIR**  
BALL BEARINGS

MOST COMPLETE LINE IN AMERICA

Branch Offices: Atlanta\* • Baltimore • Boston (Cambridge)\*  
Charlotte\* • Chicago\* • Cincinnati • Cleveland • Dallas\*  
Denver\* • Detroit\* • Houston • Indianapolis • Kansas City\*  
Los Angeles\* • Memphis\* • Milwaukee • Minneapolis\*  
Moline • New Orleans (Metairie) • New York (Woodside)\*  
Philadelphia\* • Pittsburgh\* • Portland, Ore.\* • Rochester  
San Francisco (Millbrae)\* • Seattle\*

\*Includes warehouses



## SERVICE IMPROVEMENTS

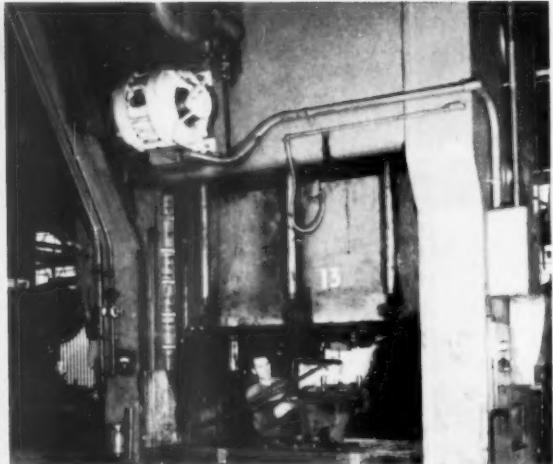
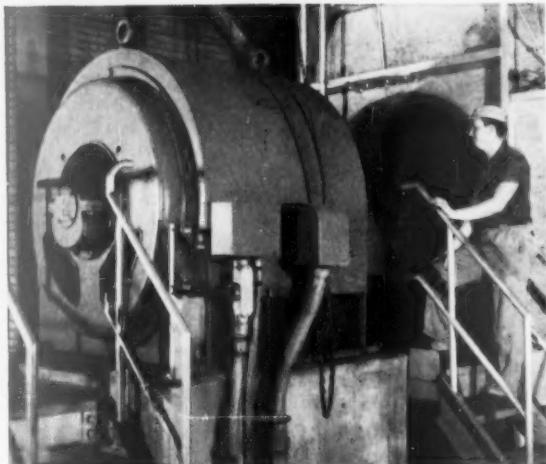
Within the past few years, The Fafnir Bearing Company has strengthened its customer services through larger branch office facilities, better warehouse facilities and new branch offices. In 1958, Fafnir's Moline, Ill., branch office operations were transferred to larger and more convenient offices . . . the Indianapolis branch office and warehouse were relocated in larger quarters . . . the San Francisco branch office and warehouse were shifted to a spacious new building in Millbrae . . . and the Dallas branch office and warehouse were relocated into a new modern one-story brick building (see illustration above). These moves are evidence of Fafnir's determination to provide the most extensive and efficient service possible to customers.

## DECIMAL EQUIVALENT WALL CHART

If you have use for a decimal equivalent wall chart printed on plastic-coated paper, ask your Fafnir Representative. Chart measures 18" x 24". Figures are bold . . . easy to read at a glance. Simplifies job of converting from fractions to millimeters and decimal equivalents or vice versa. The Fafnir Bearing Company, New Britain, Connecticut.

# stop costly motor failures...

## WITH DOW CORNING SILICONE INSULATION



Silicones handle overloads for a fan motor here . . . . and here up-rate the power of a press

### NEW MOTOR OR REWIND . . . SILICONES ADD DEPENDABILITY

Motors insulated with Dow Corning Silicones have greater resistance to heat, overloads, moisture, and corrosion. This means they give you longer, more trouble-free service life. For example, the fan motor above often operates at a 30% overload; the press motor withstands both high ambients and overloading.

In hot areas, damp or corrosive atmospheres, or on tough duty cycles, motors insulated with Dow Corning Silicones are more dependable by far. Whether you buy new motors or have old ones rewound . . . Specify Silicone Insulation and Save.

### YOUR BEST SOURCE FOR ALL SILICONES . . . DOW CORNING

Adhesives, defoamers, lubricants, cosmetic and polish additives, electrical varnishes, paint resins, intermediates, Silastic® (silicone rubber), Sight Savers®, paper coatings, laminating resins, water repellents, and release agents.

These and many other Dow Corning Silicones are cutting costs for industry . . . and are helping to make good products better. For more information, call the branch office nearest you or write direct to Dow Corning, Dept. 2014.

When you consider the entire cost,  
silicones cost less.



**Dow Corning CORPORATION**  
MIDLAND, MICHIGAN

ATLANTA BOSTON CHICAGO CLEVELAND DALLAS LOS ANGELES NEW YORK WASHINGTON, D. C.



In women's washroom at Connecticut General mirrors are placed over lipstick bars, rather than over washbowls, to reduce the incidence of drains clogged by hair and bobby pins.



At Connecticut General Life Insurance Co., Bloomfield, Conn., Mr. Raymond I. Benjamin, Building Superintendent says: "Our new, modern office building has been planned to prevent jam-ups during rush hours. Principles of washroom design, advocated by Scott Paper Company's Washroom Advisory Service, were adopted to help us overcome washroom traffic problems."

## Scott's Washroom Advisory Service offers free booklet on principles of washroom design for efficiency, pleasant appearance, low upkeep

Scott's experience in helping to design and remodel nearly a million washrooms for industry is distilled in this illustrated 32-page booklet we'll send you without cost or obligation. Send for it today.



Fountain unit for Connecticut General's print shop employees is centered in the room. Towel dispensers located a short distance from the fountain draw employees away to avoid congestion, speed washing.



Notice wall-mounted washbowls in men's room — a Scott suggestion that leaves floor areas unobstructed for quicker sweeping and mopping.

**SCOTT PAPER COMPANY**  
Department P-92, Chester, Pennsylvania

Send me a free copy of the Scott Washroom Advisory Service booklet.

I'd like to see Scott's 14-minute film on how to remodel existing washrooms for more efficiency, easier maintenance.

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

# We're Still Looking for a Pipe Fitter Who Doesn't Prefer

**RIGID**



The Ridge Tool Company

Elyria, Ohio, U.S.A.

THREADED PIPE...It's Tight...It's Best...Costs Less!

For More Information Write No. 291 on Inquiry Card—Page 32

## Association News

(Continued from page 174)

of their purchasing department's operation. Also Bill Hyslop, purchasing agent for Vancouver Equipment, in like manner acquainted his company to the membership. It is hoped that at the general meetings each member will have an opportunity to introduce his company to the association members.

The guest speaker, W. J. Herbert, supervisor, special events, Canadian Broadcasting Corp., was introduced by Bob Norrie of General Construction. Mr. Herbert who has recently visited Japan spoke on "Impressions of the Orient 1958."

### New England P.A.'s Hear Traffic Expert

Theme for the first New England Purchasing Association meeting of 1959 was "How A Better Understanding of Traffic Can Help the Purchasing Agent."

The evening speaker was Carl P. Tomm, a veteran of 20 years in all methods of freight transportation, and now manager, Piggyback Operations, Boston & Maine Railroad, and general manager of the Boston & Maine Transportation Company. He is well qualified to talk about Piggyback, the transportation of highway trailers on railroad flat cars. He told how it came about, how the practice is expanding, and described the variety of ways it operates on different railroads. He mentioned the types of equipment in use and discussed the advantages and limitations of each.

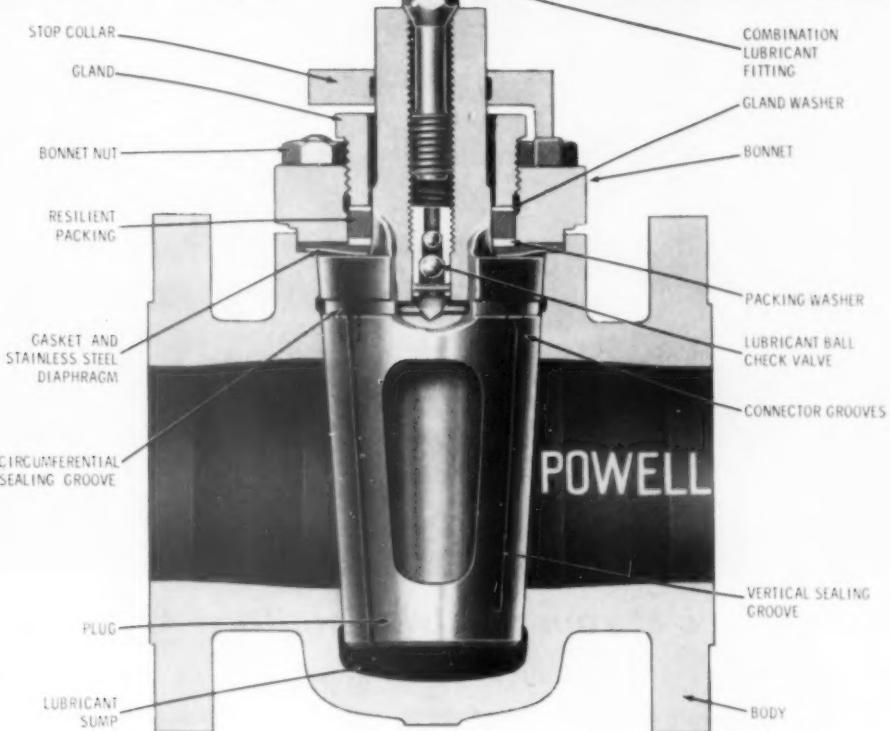


"How would you like your Purchasing dollar to stretch like this? . . ."

# POWELL

# LUBRICATED

# PLUG VALVES



Sectional view Powell Screwed Gland Lubricated Plug Valve.

Like all Powell Valves, Powell Lubricated Plug Valves are superior in their field . . . and have many advantages over other conventional types of Valves.

- Simple design: only three basic parts—Body, Bonnet, Plug.
- Quick, complete shut-off—a quarter turn will close or open the valve.
- Tapered Plug assures positive seating.
- Machined surfaces of plug and body are not exposed in the open position. Any media adhering to the plug when in the closed position is removed when plug is rotated.

- Cavity-free straight passage assures streamlined flow in either direction. Scale and sediment cannot collect.

Powell Lubricated Plug Valves are available in sizes  $1\frac{1}{2}$ " through 16", depending on the type required—Semi-steel 175 and 200 pounds WOG;—Carbon Steel ASA 150 and 300 pounds.

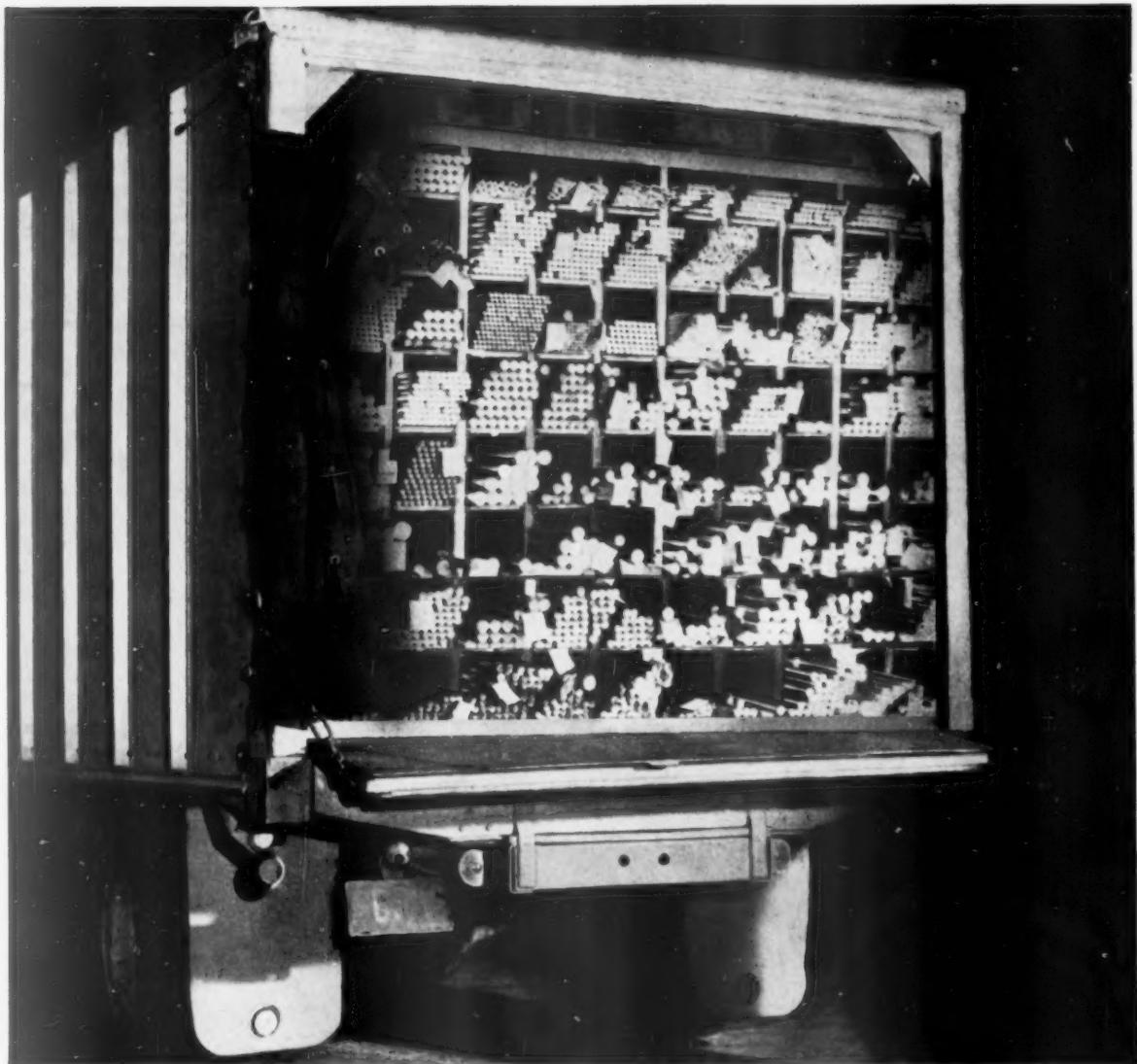
Powell can also furnish Lubricated Plug Valves in other alloys on special order.

For all your valve needs, make it a policy to consult your local Powell Distributor—or write directly to us.

**THE WM. POWELL COMPANY**

Dependable Valves Since 1846 • Cincinnati 22, Ohio

For More Information Write No. 292 on Inquiry Card—Page 32



## **a steel warehouse at your receiving platform when you want it!**

Carpenter's big network of mill-branch service-centers gives you all the benefits of a large nearby inventory, yet relieves you of the problems of space, investment, and labor that usually go with it. Complete stocks of tool, stainless and alloy steel reach your receiving platform with no more effort than calling your own stockroom. You'll add new experts to your staff . . . Carpenter representatives have practical experience with your kind of problem. Call Carpenter. You'll gain operating flexibility with no new cost problems. The Carpenter Steel Company, 182 W. Bern Street, Reading, Pa.

# **Carpenter STEEL**

**mill-branch warehouse service**

*mill-branch warehouses, offices and distributors in principal U. S. cities  
consult your local telephone directory*

# GAYLORD DEPENDABILITY KEEPS YOUR PRODUCTION ROLLING

You get a clear track to corrugated boxes when you signal Gaylord to start the run. In all lines of industry, Gaylord has a well earned reputation for delivering the packaging . . . so you can package and deliver the goods . . . on schedule.

Regular corrugated containers in big volume runs, or engineered packaging, give your G-Man the green light . . . keep production rolling profitably.



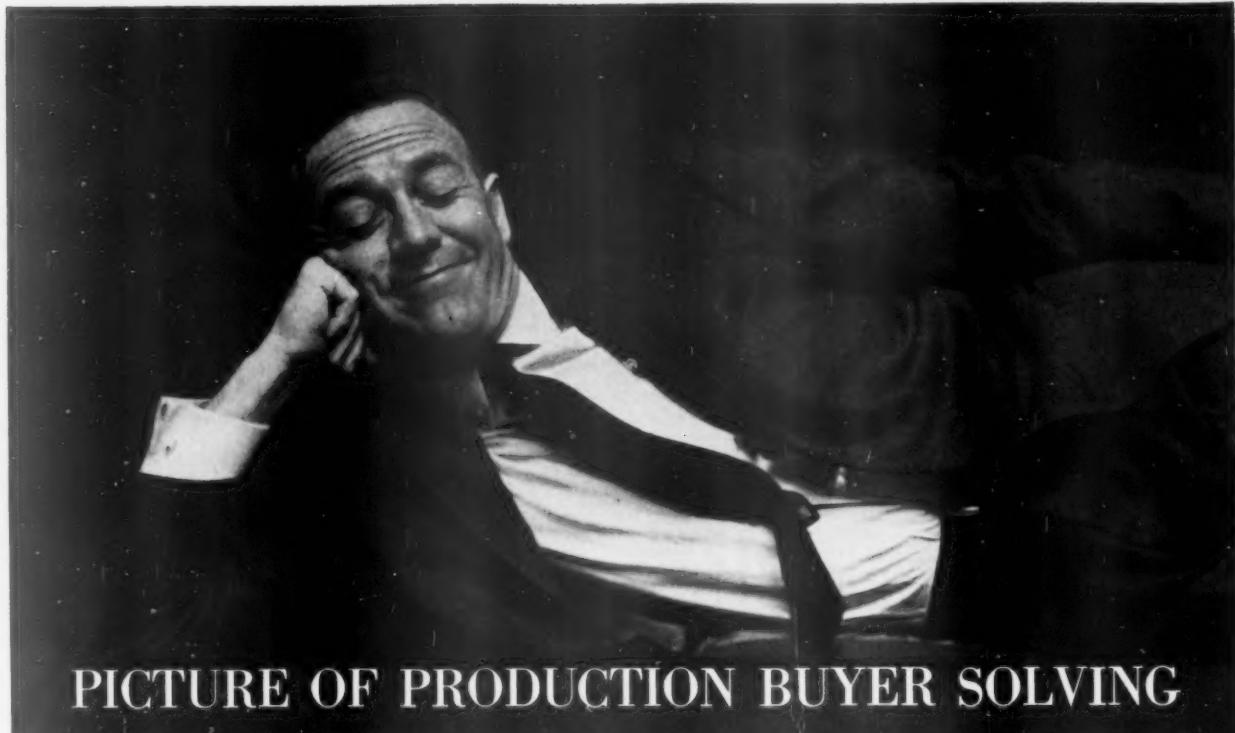
**GAYLORD**  
CONTAINER CORPORATION



HEADQUARTERS, ST. LOUIS  
PLANTS COAST TO COAST

DIVISION OF **Crown Zellerbach Corporation**





## PICTURE OF PRODUCTION BUYER SOLVING

### ALABAMA

BIRMINGHAM  
Hinkle Supply Co., Inc.  
The George F. Wheelock Co.  
MOBILE  
Oliver H. Van Horn Co., Inc.

### ARKANSAS

LITTLE ROCK  
Lyons Machinery Co.

### ARIZONA

PHOENIX  
Arizona Hardware Co.  
Ducommun Metals & Supply Co.  
TUSCON  
Arizona Hardware Co.

### CALIFORNIA

LONG BEACH  
American Wholesale Hdwe. Co.  
LOS ANGELES  
California Nut & Bolt Co.  
Ducommun Metals & Supply Co.  
Keliher Hardware Co.  
The R. J. M. Company  
Union Hardware & Metal Co.  
Warren & Bailey Co.  
SAN DIEGO  
Ducommun Metals & Supply Co.  
Western Metals Supply Co.

### SAN FRANCISCO

A. J. Glesener Co., Inc.

C. W. Marwedel

Pacific Metals Co., Ltd.

### COLORADO

DENVER  
M. L. Foss, Inc.  
Hasco, Inc.

### CONNECTICUT

BRIDGEPORT  
Lindquist Hardware Co.  
HARTFORD  
Laurel Supply Corp.  
Tracy, Robinson & Williams Co.  
NEW HAVEN  
American Supply Co.  
NORTH HAVEN  
Page, Steele & Flagg Co.  
STRATFORD  
Ellsworth Steel & Supply Co.

### DISTRICT OF COLUMBIA

WASHINGTON  
Lyon, Conklin & Co., Inc.  
York Corrugating Co.

### FLORIDA

HAILEAH (DADE COUNTY)  
Marshall Bolt & Nut Co.  
TAMPA  
J. M. Tull Metal & Supply Co., Inc.

### GEORGIA

ATLANTA  
Atlantic Sheet Metal Corp.  
Conklin Tin Plate & Metal Co.  
Pye-Barker Supply Co.  
J. M. Tull Metal & Supply Co., Inc.

### ILLINOIS

CHICAGO  
Albany Steel & Brass Corp.  
Samuel Harris & Co.  
Indiana Cap & Set Screw Co.  
Langdon Industrial Supply Co.  
Lebovitz Bros.  
B. R. Paulsen & Company  
Pulver Machinists Supply Co.  
ROCKFORD  
Samuel Harris & Co.  
WAUKEGAN  
Samuel Harris & Co.

### INDIANA

FORT WAYNE  
Mossman-Yarnelle Supply Co.  
INDIANAPOLIS  
Service Supply Co., Inc.  
Vonnegut Hardware Co.

### IOWA

CEDAR RAPIDS  
Globe Mach. & Supply Co.  
DAVENPORT  
Globe Mach. & Supply Co.  
DES MOINES  
Globe Mach. & Supply Co.  
SPENCER  
Globe Mach. & Supply Co.

### KANSAS

WICHITA  
Ellfeldt Mach. & Supply Co.  
Standard Products, Inc.

### KENTUCKY

LOUISVILLE  
Neill-LaVieille Supply Co.  
PADUCAH  
Henry A. Petter Supply Co.

### LOUISIANA

BATON ROUGE  
Oliver H. Van Horn Co., Inc.

### NEW ORLEANS

DIXIE MILL SUPPLY CO., INC.  
Oliver H. Van Horn Co., Inc.  
SHREVEPORT  
Oliver H. Van Horn Co., Inc.

### MARYLAND

BALTIMORE  
L. A. Benson Co., Inc.  
Lyon, Conklin & Co., Inc.

### MASSACHUSETTS

BOSTON  
G. R. Armstrong Mfrs. Supplies, Inc.  
Chase, Parker & Co., Inc.  
Haymarket Hardware Co.  
Stamas Metal Products Co., Inc.  
CAMBRIDGE  
Austin-Hastings Company  
Kaufman's Industrial Hdwe. Co.  
LYNN  
Lynn Hardware Co.  
SPRINGFIELD  
Carlisle Hardware Co.  
Stacy Supply Co.

### MICHIGAN

DETROIT  
Charles A. Strelinger Co.  
GRAND RAPIDS  
Hayden Supply Co.

### MINNESOTA

MINNEAPOLIS  
Minnesota Steel Supply Co.  
Vincent Screw & Bolt Division

### MISSISSIPPI

JACKSON  
Mississippi Foundry & Machine Co., Inc.  
Oliver H. Van Horn Co., Inc.

### MISSOURI

KANSAS CITY  
Ellfeldt Mach. & Supply Co.  
ST. LOUIS  
Brauer Supply Co.  
Sligo, Inc.

### NEBRASKA

OMAHA  
Paxton & Gallagher Co.

### NEW HAMPSHIRE

NASHUA  
Edgcomb Steel of New England, Inc.



Not a thing to worry about . . .  
the job's being taken care of right now  
by his local P-K® BULK-STOCKING  
DISTRIBUTOR. You, too, can take  
advantage of this ever-ready service.  
Your nearby industrial distributor has  
Parker-Kalon quality fasteners *on-the-shelf*  
and *immediately available*. He's your  
fastener stockroom and he is practically  
"around the corner" from your plant.  
USE HIM FOR YOUR PRODUCTION-RUN  
QUANTITIES, EMERGENCY LOTS,  
STANDARD SIZES—WHATEVER YOU  
MAY NEED IN FASTENERS.

CONTACT THESE P-K BULK-STOCKING  
DISTRIBUTORS TODAY, TOMORROW, ANY-  
TIME FOR SAMPLES, TECHNICAL DATA,  
AND IMMEDIATE DELIVERY FROM STOCK

## A BULK SCREW DELIVERY PROBLEM . . .

### NEW JERSEY

BELLEVILLE  
Tri-County Industrial Supply  
JERSEY CITY  
Edward Ruskin  
York Corrugating Co.  
NEWARK  
The Abrasive Machine & Supply Co.  
Industrial Bolt & Nut Co.  
NORTH PLAINFIELD  
Laurel Wholesale Hardware Co.  
PALISADES PARK  
Secure Fastener & Tool Co., Inc.  
PASSAIC  
Wholesale Hardware Co., Inc.  
TRENTON  
Warren, Balderston Co.

### NEW YORK

BROOKLYN  
David Levow  
National Bolt & Nut Co.  
BUFFALO  
Don F. Johnson Co.  
R. C. Neal Co., Inc.  
ELMIRA  
Gierston Tool Co., Inc.  
JAMESTOWN  
Gierston Tool Co., Inc.  
NEW YORK  
Morris Abrams, Inc.  
Colonial Hardware Co.  
Industrial Fasteners Corp.  
Kass Hardware & Supply Co.  
D. E. Kesseler Co.  
Keystone Bolt & Nut Corp.  
ROCHESTER  
R. C. Neal Co., Inc.  
SYRACUSE  
LeValley McLeod, Inc.

### OHIO

CANTON  
Canton Supply Co.  
CINCINNATI  
E. A. Kinsey Company  
CLEVELAND  
The W. Bingham Co.  
Kimball Company  
White Tool & Supply Co.  
COLUMBUS  
E. A. Kinsey Co.  
Vorys Brothers, Inc.  
DAYTON  
E. A. Kinsey Co., Inc.  
Ohio Metal & Mfg. Co.

LIMA  
Clevenger Co., Inc.  
YOUNGSTOWN  
Stambaugh-Thompson Co.

### OKLAHOMA

OKLAHOMA CITY  
Hart Industrial Supply Co.  
TULSA  
Hart Industrial Supply Co.

### OREGON

PORTLAND  
American Steel Warehouse Co.  
J. E. Haseltine & Co.  
Pacific Metal Company

### PENNSYLVANIA

ERIE  
Erie Industrial Supply Co.  
LANCASTER  
Harold E. Smith Co.  
PHILADELPHIA  
Alden Supply Co., Inc.  
Carter, Donlevy Co.  
Maddock & Company, Inc.  
T. C. Ulmer, Inc.  
PITTSBURGH  
Standard-Machinists Supply Co.  
READING  
Thomas Body Parts Co.

### NEW YORK

YORK  
York Corrugating Co.

### RHODE ISLAND

PROVIDENCE  
Franklin Supply Co.

### TENNESSEE

MEMPHIS  
Lewis Supply Co.  
TEXAS  
DALLAS  
Bosco Bolt, Nut & Screw Co.  
Moncrief-Lenoir Mfg. Co.  
FORT WORTH  
Oliver H. Van Horn Co., Inc.  
HOUSTON  
Moncrief-Lenoir Mfg. Co.  
Peden Iron & Steel Co.  
Oliver H. Van Horn Co., Inc.  
LONGVIEW  
Heritage Tool & Supply Co., Inc.  
LUBBOCK  
Moncrief-Lenoir Mfg. Co.  
SAN ANTONIO  
Moncrief-Lenoir Mfg. Co.

### UTAH

SALT LAKE CITY  
Pacific Metals Co., Ltd.

### VIRGINIA

RICHMOND  
Southern Railway Supply Co., Inc.

### WASHINGTON

SEATTLE  
Campbell Industrial Supply Co.  
SPOKANE  
Eagle Metals Co.  
J. E. Haseltine & Co.  
TACOMA  
Campbell Industrial Supply Co.

### WISCONSIN

MILWAUKEE  
Mortensen Industrial Supply Co., Inc.

### CANADA

#### BRITISH COLUMBIA

VANCOUVER  
Black Bros., Ltd.  
Marathon Equipment & Supply Ltd.

#### ONTARIO

HAMILTON  
Vallance, Brown & Co., Ltd.  
LONDON  
Thames Industrial Supplies, Ltd.  
TORONTO  
Aikenhead Hardware, Ltd.  
Marathon Equipment & Supply Ltd.  
Railway & Power Eng. Corp., Ltd.

#### QUEBEC

Montreal  
Caverhill, Learmont & Co., Ltd.

# PARKER-KALON® fasteners

PARKER-KALON DIVISION, General American Transportation Corporation, Clifton, New Jersey.

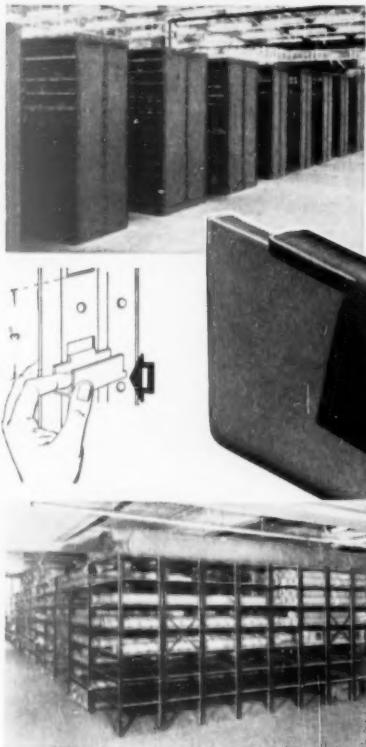
KEEP AMERICAN INDUSTRY AT WORK... BUY P-K... MADE IN U.S.A.

For More Information Write No. 295 on Inquiry Card—Page 32

**Gentlemen — here she is — the one and  
only one — the Borroughs Shelf  
Support Bracket that makes**

## **BORROUGHS STEEL SHELVING**

**the most simple, most flexible, most rapidly  
assembled shelving on the market...bar none!**



Here's all you do! You merely insert Borroughs' exclusive Shelf Support Brackets into post slots — then tilt shelves into brackets — and that's it — you're finished! — and your shelves are ready for loading.

There's no fumbling with studs, bolts, nuts or lock washers. Except for the top shelf (2 bolts and 2 nuts), no other bolts or nuts are required for shelves. And gentlemen, remember this — you need no special tools for assembly of any unit. Each individual unit is complete in itself — any unit or shelf can be moved independently. Write today for more facts.

### **send for catalog**

Represented in Sweet's Catalog,  
Plant Engineering File 4G BO

**BORROUGHS MANUFACTURING COMPANY  
OF KALAMAZOO**

A SUBSIDIARY OF THE AMERICAN METAL PRODUCTS COMPANY OF DETROIT

3014 NORTH BURDICK ST.  KALAMAZOO, MICHIGAN

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### **Association News**

#### **Rhode Island P.A.'s Hear About "Investments"**

The Rhode Island Purchasing Agents Association is indebted to the well known investment firm of Brown, Lisle and Marshall for a recent program, the subject of which was "Investments."

A sound movie, showing the inner operations of the New York Stock Exchange, opened the program. A short explanatory talk followed the movie.

The meeting closed with a question and answer period in which George Cabot, Everett Sykes, and Joseph Pothier, Jr. of the Brown, Lisle & Marshall organization gave answers to the many questions on investments which came up.

#### **Space Flight Talk to Cleveland P.A.'s**

The Purchasing Agents Association of Cleveland recently heard about "Space Flight on the Installment Plan" by Uwe H. Von Glahn, chief, flow physics branch, NASA-Lewis Research Center.

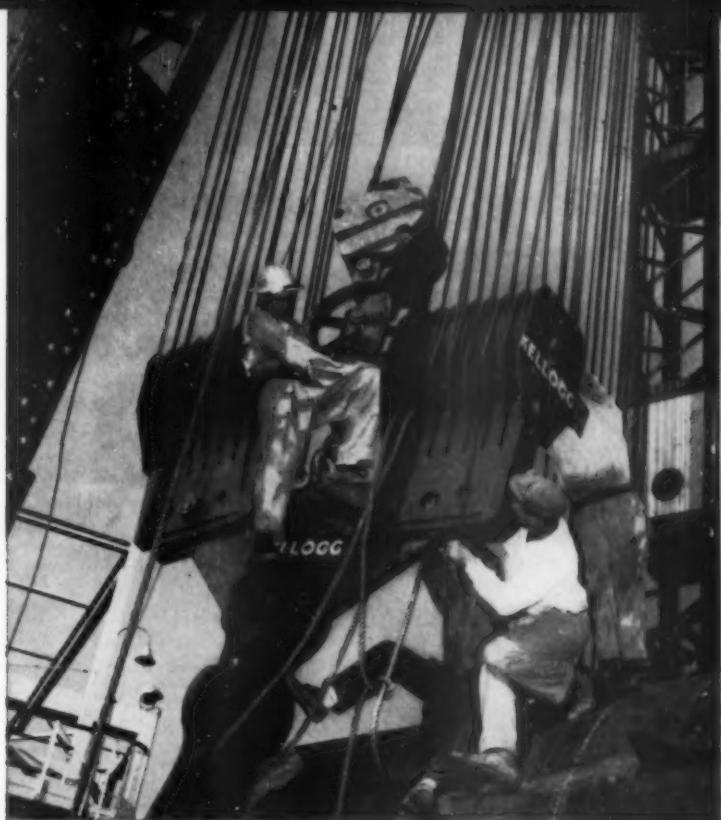
Mr. Von Glahn explained what the current missile realities—the Titan, the Atlas, the Minute Man—mean to all of us. He discussed the economics of space flight, and indicated how manned space missions could be best accomplished.

#### **Buffalo Ass'n Hears Chemist**

The Purchasing Agents Association of Buffalo met recently at the Hotel Sheraton. The association honored one of its outstanding former members, Jack Rutherford.

Guest speaker for the evening was Mr. Shirley Gale of the American Cyanamid Company of New York. Mr. Gale's subject was Chemistry on a Cosmic Scale. Mr. Gale is well equipped to handle this vast subject, having been research and development chemist for his company. He is known as the "Dean of Lecturers" at the Hayden Planetarium.

Wire rope users in  
every field report  
low operating costs



## with Tiger Brand, America's No. 1 Wire Rope



**Tiger Brand Wire Rope** is the first choice in all fields because it's made to unvarying quality standards. It possesses strength, toughness and flexibility in the right combination to stand up tirelessly under long, hard service.

Its Excellay Preformed construction makes it easy to handle . . . quick to install. It requires shorter breaking-in period . . . has less tendency to loop, kink or whip . . . it hugs sheaves and drums at all speeds. And it offers the highest resistance to bending fatigue.

You can depend on Tiger Brand to help reduce operating costs . . . to do a more efficient job in any service calling for quality in wire rope. That's why there's more Tiger Brand in use than any other make. Call us today for any type of wire rope you need. Or write American Steel & Wire, Rockefeller Building, Cleveland 13, Ohio. *USS* and *Tiger Brand* are registered trademarks

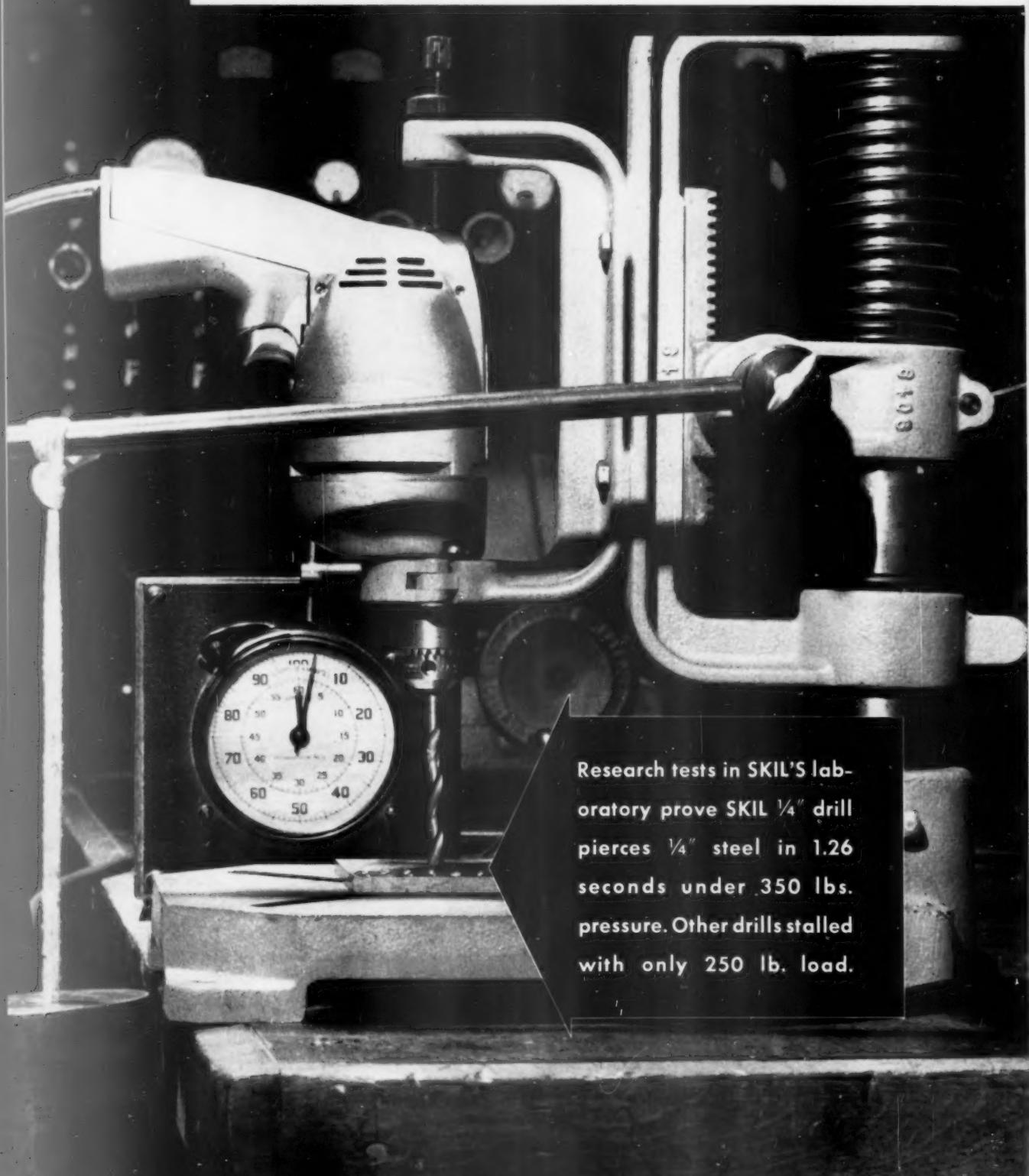
American Steel & Wire  
Division of



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Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors • Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors  
United States Steel Export Company, Distributors Abroad

*a special report to purchasing executives...*



Research tests in SKIL'S laboratory prove SKIL  $\frac{1}{4}$ " drill pierces  $\frac{1}{4}$ " steel in 1.26 seconds under .350 lbs. pressure. Other drills stalled with only 250 lb. load.

# how **SKIL** research helps solve tool-users' problems

When you get right down to it, the main purpose of the existence of the Skil Corp. is to help the users of Skil tools solve their problems quicker, easier, better *and* at a profit. We keep this in mind in all of our work in the Research and Development Center located in our main plant in Chicago.

*(By the way, we would welcome your visit to see the most modern power tool manufacturing plant in the country, next time you are in Chicago.)*

This approach guides us in setting new trends—trends which have caused our friends in purchasing to look upon Skil as the leader in bringing forth significant innovations in portable power tools.

#### **Outstanding Field Sales Engineers**

You have probably noticed that your well-trained Skil Field Sales Engineer is not always "looking for an order" when he calls on you. (Yet, you'll find him to be as fine a *salesman* as you'll ever meet.) Often-times, he is looking for information. You might have an application for power tools involving work with new materials, and our salesman will want to relate this information to the Research Department so that their thinking will be guided by your current—and future—problems.

#### **New Information for You, Too**

The other side of that coin is the information he might have for you. There is a never-ending stream of new developments and new applications of Skil tools that could well help you and your company cut production and maintenance costs, and do a better job.

#### **5 Plants and 34 Branches**

To provide you with finest delivery and service, Skil's strategically located plants and branches assure you that you are never more than a day away from factory service. This network of facilities backs up every Skil product—a service that backs up your decision to buy products bearing the Skil name.

#### **What Is Your Current Tool Problem?**

We hope we have anticipated some of your upcoming tool problems. Many new Skil tools are being secretly tested right now in plants like yours throughout the country. If you have a problem that we can help solve with portable power tools, please let us know about it. Our research facilities are the finest—staffed by engineers who have a practical, working knowledge of the applications of the tools they develop. Just write to General Sales Manager, SKIL Corporation, 5033 Elston Avenue, Chicago 30, Illinois.

From time-to-time, we hope to keep you informed of what is new from Skil through reports such as this. In turn, we welcome your comments and suggestions.

Our 35 years of experience has more than convinced us that this exchange of ideas is the key to success—both yours and ours.



*...setting trends today for leadership*

## Association News

### Research Director at Dallas

Philip E. Coldwell, director of research for the Federal Reserve Bank of Dallas addressed a meeting of the Purchasing Agents Association of Dallas on the subject "Economic Trends in 1959."

Prior to this, Robert D. Crane, Dresser Industries, Inc., gave a five minute quickie on "How to Make a Report to Management."



# save dollars

*with this sense-making idea*

**LITERALLY** thousands of dollars can be saved through the practical application of basic bolt making principles in designing and specifying fasteners.

In the actual case shown, savings were pyramided through reduced inventory, handling, purchasing and production time; while one part was eliminated entirely.

To make this basic information available, Buffalo Bolt Company has drawn on over 100 years of experience to put together a digest of these principles.

You'll find them in our new booklet, "How to specify fasteners . . . and save". Filled with drawings and charts, it makes a handy guide in designing or buying any headed parts.

If you can use a copy, write to North Tonawanda or ask a Field Representative.



#### BUFFALO BOLT COMPANY

Division of Buffalo-Eclipse Corporation

North Tonawanda, N.Y. • Princeton, Illinois

MAKING BOTH FASTENERS AND FRIENDS FOR 100 YEARS

• 3 convenient service centers

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Harrison 7-2178

#### EASTERN OFFICE

New York City  
Rector 2-1888

#### CENTRAL OFFICE

North Tonawanda  
Jackson 2400 (Buffalo)

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on Inquiry Card—Page 32

188

For More Information Write No. 299  
on Inquiry Card—Page 32

Joseph W. Nicholson, retired City of Milwaukee Purchasing Agent.



Lloyd Larson, sports editor of the Milwaukee Sentinel.

### Milwaukee Ass'n Sends Educator to Industry

Entertainment for the ladies at the annual "Ladies Night" of the Milwaukee Association of Purchasing Agents took the form of two local speakers: Lloyd Larson, sports editor of the Milwaukee Sentinel; and Joseph W. Nicholson, City of Milwaukee Purchasing Agent.

(Please turn to page 192)



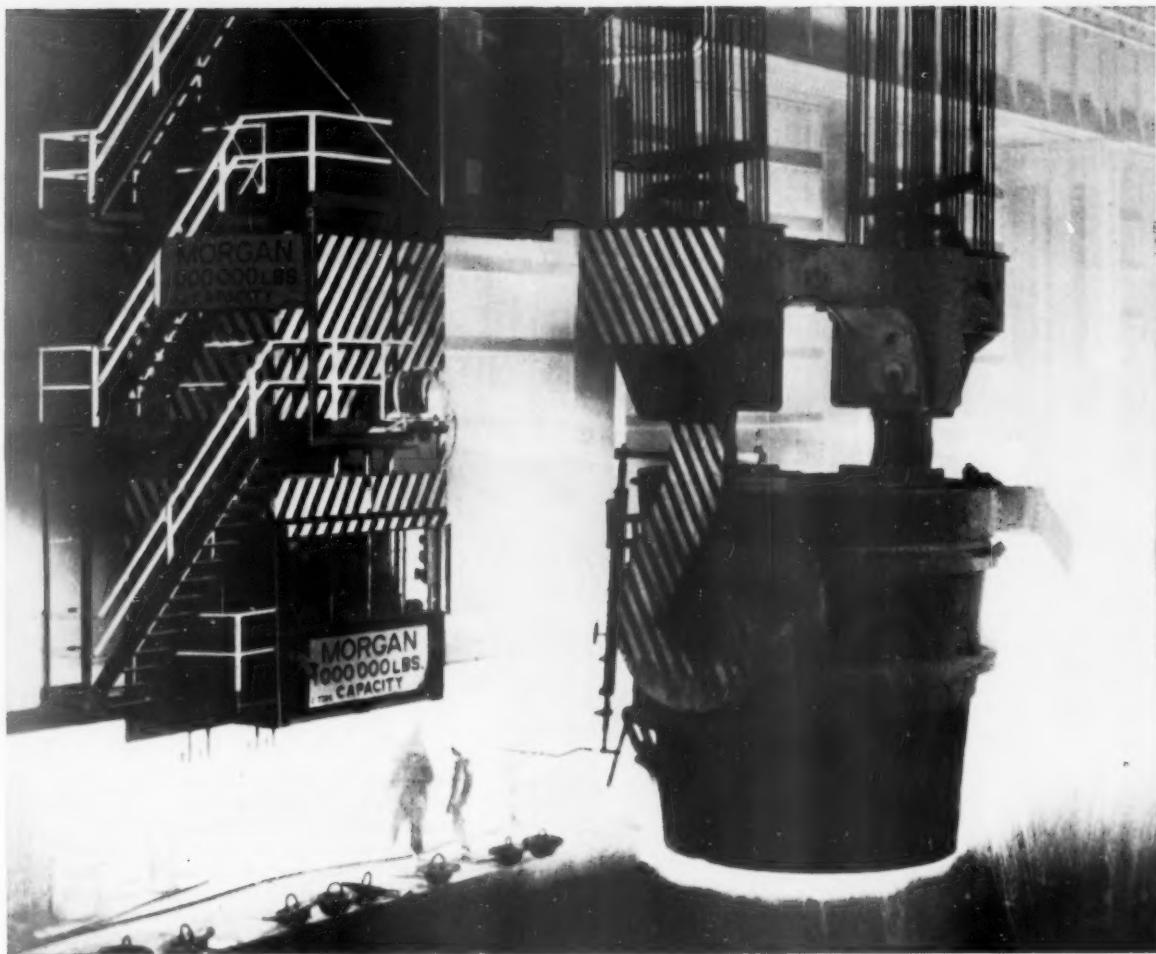
● Check the Jeffrey line when specifying parts or accessories for any of your materials handling jobs. Jeffrey products have been time-tested on original equipment and as replacements in all kinds of industrial applications. Their design, materials and workmanship are of the finest, assuring efficient, low-cost service.

Jeffrey transmission products are widely known for quality and dependability. Many of the most popular types of chain were originated and patented by Jeffrey and since have been adopted as standard throughout industry. Send for complete data. Distributors in principal cities. The Jeffrey Manufacturing Company, 784 North Fourth Street, Columbus 16, Ohio.



CONVEYING • PROCESSING • MINING EQUIPMENT...  
TRANSMISSION MACHINERY...  
CONTRACT MANUFACTURING





Repeated million-pound loads in the intense heat from 375 tons of molten steel, cause no spelling or deformation of Rollway Bearings.

## 1,122,000 Pounds Ride on 68 Rollway Bearings

One of the largest in the world, this 500-ton Morgan-built ladle crane is Rollway equipped in many positions.

Sixty-eight maximum-type, solid-cylindrical bearings—mounted without inner races—lift and lower the 1,122,000-pound weight of the lifting beam, ladle hooks, ladle and white-hot steel.

Rollway Tru-Rol® type bearings are used in the two General Electric 360 HP—MD-620 Hoist motors which lift the weight of the ladle and its molten metal content.

The maximum-type bearings in the hoisting sheaves are mounted directly on the shaft without inner races, which greatly simplifies assembly for applications of this size.

Thrust bearings in the 25-ton and 75-ton auxiliary crane hooks are standard Rollway precision types with broad-area contact between



Sheaves ready for assembly on shaft and installation in lifting beam.

rollers and plates to prevent Brinelling and assure freedom of rotation under the heaviest loads.

*For bearings that accomplish the extraordinary in an ordinary manner, write, wire or 'phone Rollway Bearing Co., Syracuse 1, N.Y.*

**ROLLWAY®**  
**BEARINGS**

ENGINEERING OFFICES: Syracuse • Boston • Chicago • Detroit • Toronto • Pittsburgh • Cleveland • Seattle • Houston • Philadelphia • Los Angeles • San Francisco  
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# NOW TESTS PROVE... CONTOUR-WELDED\* STAINLESS TUBING IS SMOOTHER!

*this greater  
smoothness provides . . . longer fatigue life*



Recent tests conducted on different types of full-finished tubing prove that TRENTWELD® tubing—made by the exclusive *Contour-Weld\** process—is smoother than tubing made by any other method of manufacture.

**TRENTWELD IS SMOOTHER THAN SEAMLESS.** The walls of welded tubing generally are smoother than the walls of seamless because welded tubing is formed from uniformly rolled strip steel whereas seamless is extruded from a billet. *The tests confirm this point of difference.*

**TRENTWELD IS SMOOTHER THAN OTHER WELDED TUBING.** These tests also confirm that TRENTWELD tubing is smoother than any other welded type thanks to *Contour-Welding\**, the welding process patented by Trent that virtually eliminates the weld bead.

**WHY SURFACE SMOOTHNESS IS SO IMPORTANT.** In still other tests, it has been proved that surface smoothness directly affects *fatigue life*—critical in hydraulic and other pressure applications . . . *corrosion resistance*—vital in strong chemical environments . . . *particle incrustation*—which must be eliminated to prevent product contamination.

So, next time you need stainless or high alloy tubing, be sure you specify TRENTWELD. It's also available in titanium, zirconium, Zircalloy and Hastelloy†, in sizes from  $\frac{1}{8}$  to 40 in. Meanwhile, why not get full details. Send today for the free, 50-page Trent Tubing Manual. Write: Trent Tube Company, Box 2518, Pittsburgh, Pa.

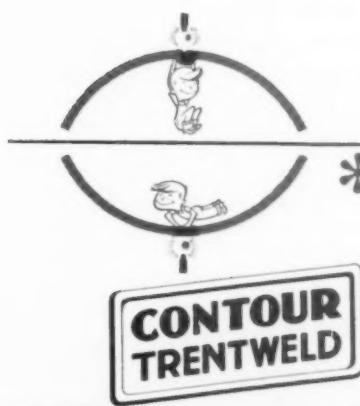
†Trademark of Haynes, Stellite Co.



*greater corrosion resistance*



*less product incrustation*



#### WHAT CONVENTIONAL WELDING IS

In conventional welding of tubes, gravity pulls molten metal down inside the tubing to form a bead that is difficult to remove by cold working. And cold working may lead to undercuts, focal points for fatigue cracks and corrosive attacks. Cleaning becomes difficult.

#### WHAT CONTOUR TRENTWELD IS

With *Contour-Welding* the tube is welded at the bottom. Gravity still pulls the molten metal down, but now the weld area corresponds to the contour of the tube. There's virtually no weld bulge on the inside surface. And even on the O.D., the weld seam more closely conforms to the contour of the tubing.

## Stainless and High Alloy Pipe and Tubing

TRENT TUBE COMPANY Subsidiary of Crucible Steel Company of America • GENERAL OFFICES: East Troy, Wisconsin • MILLS: East Troy, Wisc.; Fullerton, Calif.

## COTTON\* helps relieve sanitation headaches at Bayer



\*Fairfax Toweling used by the Bayer Company Division is supplied by Sanitary Coat, Apron and Towel Supply Co., Trenton, N. J.

• Sanitation is a serious matter in the drug field. The Bayer Company Division of Sterling Drug, Inc., attempts to cover every possible aspect of plant sanitation—right down to the very washrooms used by its employees. That's why Bayer's Trenton (New Jersey) plant provides cotton toweling for the 400 people who work there—and cotton does the job.

Just as Bayer finds it "easier to keep washrooms clean," countless other companies have found cotton toweling a valuable aid in sanitary maintenance. And still others stress cotton's feel-at-home comfort, as a personnel relations factor, along with fire prevention, too. Certainly all these points should make it worth your while to check into cotton's possibilities for your plant, building or institution. For further information, and free booklet on cotton toweling service, write Fairfax, Dept S-2, 111 West 40th St., New York 18.

### Here's How Linen Supply Works...

You buy nothing! Your linen supply dealer furnishes everything at low service cost—cabinets, pickup and delivery, automatic supply of freshly laundered towels and uniforms. Quantities can be increased or decreased on short notice. Just look up LINEN SUPPLY or TOWEL SUPPLY in your classified telephone book.

### Clean Cotton Towels...

Sure Sign of Good Management

**Fairfax-Towels**



WELLINGTON SEARS COMPANY, 111 WEST 40TH ST., NEW YORK 18, N.Y.

For More Information Write No. 303 on Inquiry Card—Page 32

## Association News

(Continued from page 188)

Mr. Nicholson, who recently retired, was presented with an honorary membership to the association.

A later meeting of the Milwaukee Association featured a report from Brother Leo V. Ryan, C.S.V., assistant dean of Marquette College of Business Administration and a director of the evening division. Brother Ryan who recently completed a six-week period at the A. O. Smith Corp., told of his experiences there. He had worked at A. O. Smith under a fellowship established by the Milwaukee Association, which each year selects a key educator to spend a six-week period in industry.

Brother Ryan posed the question: "Is the fellowship venture of real value to the association?" His answer: "Yes." Reasons: "This experience destroyed the fallacy of the educators in the ivory towers being far removed from the businessmen in the market place. It served to prove that the academic and the actual practice are not far apart. Professional growth must be through education. By taking part in such an experience, the educator is better able to give the students actual business concepts and problems, preparing them more for their later entry into the business world. These are the logical extensions of the aims and objectives of the Milwaukee Association of Purchasing Agents."

### Educational Buyer's Purchasing Institute, March 9-13

The National Association of Educational Buyer's Eleventh Purchasing Institute will be held at the Hotel Morrison, Chicago, Illinois, March 9-13, 1959.

Faculty members are: Dr. Bruce J. Partridge, business administrator, University of Delaware; and A. Paul Nestor, purchasing supervisor, University of Kentucky. Bert C. Ahrens, executive secretary, National Association of Educational Buyers, is the Institute Director.

For More Information Write No. 304  
on Inquiry Card—Page 32—  
PURCHASING

BOUND  
BROOK  
BEARING  
MATERIAL  
SELECTION  
CHART

CHART  
INSIDE

*Yours...  
for the asking*

The proper material for sintered bronze or iron bearings has always been a major problem to design men. Now for the first time a chart has been engineered, clearly showing the complete chemical, mechanical, and work characteristics of a wide range of sintered bearing materials. The best material for most applications can be selected by a draftsman in a matter of minutes. Only requests on company stationary will be honored.

**BOUND BROOK**

BOUND BROOK OIL-LESS BEARING CO. EST. 1883, BOUND BROOK, N.J.

Pioneer in  
POWDER METALLURGY BEARINGS + PARTS



**Tuffy  
Tips  
On**

## SAFE USE OF SLINGS AND HOIST LINES



# Lifting Strains Take High Toll of Injuries

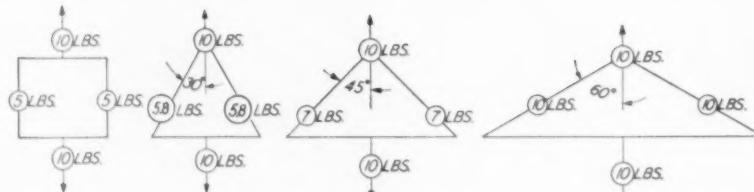
Did you know that in some states one in every six compensation claims involves back injuries? And that one insurance company says back injuries constitute 60% of their claim expense?

Hernia is another hazard of materials handling. One manufacturer reported 75% of his compensation claims involved hernias. This high incidence of hernias and back injuries can be greatly reduced by proper lifting equipment and methods.

### What can you do to reduce materials handling accidents? Here are some of the answers:

1. Teach your workers rated load factors. Warn them not to overload slings.
2. Use the right size hoist for every heavy lifting job. Don't put the load on human muscle.
3. Show workers how to rig hoists properly and safely. Load chains shouldn't be used as slings. Previous distortion and weakening of links may cause them to break even with a light load.
4. Inspect hoist load brakes often. Slipping or dragging brakes should never be used.
5. Be sure to use the proper sling for the job. Don't assume that all slings made of wire rope are right for all lifting operations.

### How Sling-Leg Load Increases with Increased Fleet Angle



These four drawings show approximate load increases on each leg of a bridle sling as the vertical angle of spread between legs increases. For accurate factors for the various angles, refer to your Tuffy Sling Handbook. (Don't have one? Write

Union Wire Rope Corporation. Specialists in high carbon wire, wire rope, braided wire fabric and stress relieved wire and strand. 2282 Manchester Avenue, Kansas City 26, Missouri.)

### Get Your FREE Tuffy Sling Handbook



Gives full data on Tuffy Slings. Types, dimensions, weights and rated loads. Also contains an expanded section on fittings — many not previously shown. Write for your copy now.



**UNION**  *Wire Rope*

Subsidiary of **ARMCO STEEL CORPORATION**  
OTHER SUBSIDIARIES AND DIVISIONS: Armco Division • Sheffield Division • The National Supply Company  
Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Southwest Steel Products

### Why Tuffy Slings Do A Better Job More Safely



*Tuffy Slings* have a combination of extra strength and super flexibility. The patented machine-braided fabric is the secret. It gives Tuffy greater strength, faster handling, longer life, greater safety than ordinary slings—at a cost to service life ratio that figures low. And it's so flexible that kinks can be pounded out without material damage.



*Tuffy* pressed-on ferrule gives eye-splice full fabric strength. The steel ferrule is applied under tremendous pressure. It literally flows into spaces between wires and strands. The friction force thus created gives the eye-splice 100% of the fabric strength. And the streamlined Tuffy ferrule leaves no openings or rough projections to snag or injure hands.



Tie a knot in a Tuffy Sling? Pull it as tight as you can. Even if you kink it, it's still easy to straighten out with no material damage to the sling.

### See Your Tuffy Distributor

He's stocked for fast delivery of all your Tuffy Slings and Union Wire Rope needs.

# Amchem Alodine...



If you fabricate aluminum products—painted or unpainted—Amchem Alodine can provide you with an effective and protective chemical conversion coating process of remarkable characteristics.

The Amchem Alodine process forms an amorphous coating which becomes an integral part of the metal, enhances the natural corrosion resistance of the aluminum and provides an excellent bond for paint.

Alodine's simplicity, speed and economy as a pre-paint treatment has gained widespread commercial acceptance in a wide variety of product applications.

Beyond product, Amchem provides the metalworking industry a complete service—processes, technical and engineering assistance, installation and instruction service—for corrosion protection, paint bonding, or other metalworking problems.

*Write for complete information contained in Bulletin 1424A describing the uses of Amchem Alodine, as well as other literature pertinent to Amchem chemical conversion processes for the metalworking industry.*



## AMCHEM ALODINE



Amchem Alodine is another chemical development of **Amchem Products, Inc.**, Ambler, Pa. • Formerly American Chemical Paint Company Detroit, Mich. • St. Joseph, Mo. • Niles, Calif. • Windsor, Ont./Amchem and Alodine are registered trademarks of Amchem Products, Inc.

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## For Round-the-Clock Security Against...



Call the  
**ANCHOR MAN**  
—expert in  
industrial protection

How well are you protected from the financial drain of vandalism—from petty pilferage—from costly lawsuits due to injuries? If you have any doubts, call in your Anchor Man.

In a few minutes he can show you the many ways Anchor Fence is engineered for protection—for instance, how Anchor's exclusive square terminal posts give you added security by removing potential toe and hand holds. His visit could save you thousands this year alone.

Call your local Anchor Fence office today. You may be more than glad you did. For informative literature, write: ANCHOR FENCE, 6615 Eastern Ave., Baltimore 24, Md.



**ANCHOR FENCE**  
Division of ANCHOR POST PRODUCTS, INC.

Plants in: Baltimore, Md.; Houston, Texas; and Whittier, Cal. Sold direct from factory branches and warehouses in principal cities.

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## Industry

**Emerson Electric Manufacturing Company, St. Louis, Mo.**, has acquired the Imperial Lighting Products Company of Latrobe, Pa. The new company will be known as Emerson-Imperial Lighting Company. There will be no changes made in its operating policies. The company manufactures a wide variety of indoor and outdoor lighting fixtures, both residential and commercial. About 300 persons are employed in the company's 100,000 square foot plant, which is about 50 miles from Pittsburgh.

**The Air Reduction Sales Company**, a division of **Air Reduction Company, Inc.**, has announced the completion of a new facility for the production of oxygen and nitrogen in the Armourdale district of Kansas City, Kansas.

The new plant makes high purity oxygen and nitrogen, and will serve users of industrial gases.

### Equipment Leasing

(Continued from page 21)

Recent surveys have shown the increasing popularity of leasing. For instance, in a National Industrial Conference Board survey, 32% of the respondents report they are now leasing more equipment than they did five years ago. The NICB says overall expenditures for leased equipment and facilities are increasing.

A PURCHASING Magazine survey on leasing (p. 15) also indicates greater interest among P.A.'s about leasing. Fifty-one % of those surveyed currently lease equipment and almost half plan to lease in 1959. A majority of the purchasing men find that more suppliers are offering leasing plans this year than ever before.

### List Price Plus Financing

Industrial equipment leases are generally for a term of three to five years. The amount paid by the P.A. for a lease is generally the list price of the machine plus interest charges plus leasing charges.

Take the case of a machine tool costing \$100,000 with a useful life

of ten years. For a five-year uniform payment lease, the lessor might charge 6% annual add-on interest—which would include what he has to pay for financing and his own profit. Thus the cost of the entire lease would be \$130,000. Divided by 60 payments, the monthly lease charge comes to \$2166.67 per month.

### Flexible Contracts

In addition to uniform payment leases, manufacturers and leasing companies will make other types of leases to suit the requirements and needs of the individual P.A. Leases can be written on a straight line, declining balance, sum of the digits, or any other schedule preferred. Some leases require that a prepayment of the last three or four months of the lease be made as a security deposit.

Many leases contain an option to renew at a substantially lower cost than under original terms. In the instance cited above—if the renewal option for a five-year period was at 5% of the original lease payments—you would then pay 60 additional monthly payments of \$108.33 to the lessor. For some leases, the annual charge for the renewal period is as low as 1% of the original sale price.

Some companies will buy your present equipment and lease it back to you at the same time. They will also arrange to replace obsolete equipment with more modern machines at a slightly higher rental fee. Most leasing plans are quite flexible and can be adopted to the particular requirements of individual P.A.'s.

### Sources of Leases

P.A.'s can arrange leases with either the manufacturer of the equipment or with a leasing company. Many manufacturers have set up subsidiary companies to handle their leasing arrangements. Some banks offer lease plans too, but most of them require a compensating bank balance.

If the manufacturer of the equipment you need offers a leasing plan, it is worthwhile to investigate. Although the number of durable goods manufacturers offering their own plans is rela-

(Please turn to page 200)  
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## **IN PRODUCT AFTER PRODUCT AFTER PRODUCT ... WEIRTON HOT- AND COLD-ROLLED SHEET**

In automobiles and portable TV cabinets, in air conditioners, stoves and laundry equipment—in almost any application you can name you'll find Weirton hot- and cold-rolled sheets at work.

Their roles: helping one manufacturer after another to produce standout products at low cost with no hitches in fabrication.

You can put to good use the uniform gauge, strength and ductility of Weirton hot- or cold-rolled sheet.

Weirton is always ready to serve your needs for quality sheets. For prompt and complete service just phone or write Weirton Steel Company, Dept. G-3, Weirton, West Virginia.



**WEIRTON STEEL COMPANY**  
WEIRTON, WEST VIRGINIA  
a division of

**NATIONAL STEEL CORPORATION**

# How to save money with jet-age air freight!



THE JET AGE IS HERE. This means new markets, lower inventory, more sources of supply, if you take full advantage of air freight.

All the more reason why you should know about exclusive Emery Air Procurement Service. Any company of any size can use it. Let us tell you how Air Procurement Service can fit into your purchasing program. Write or call us. We have offices in all major cities.

## SEE WHAT YOU SAVE!

		2500 MI.		1700 MI.		700 MI.	
		Emery	Air Express	Emery	Air Express	Emery	Air Express
50 lb.		\$23.54	\$39.70	\$19.38	\$28.50	\$13.27	\$12.50
100 lb.		38.90	77.40	31.20	55.00	19.10	23.00
200 lb.		69.00	154.80	53.00	110.00	29.80	46.00



**EMERY AIR FREIGHT CORPORATION**

General Offices: 801 Second Avenue, New York 17, N. Y.—Domestic and International Service.

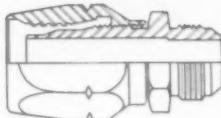
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another  
**NEW BOOK**  
 with that  
**Eastman**  
**LOOK**

36 pages on  
 medium to low pressure  
 hydraulic hose and tube assemblies

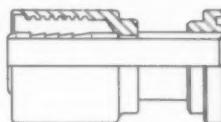
**REUSABLE COUPLINGS FOR RUBBER COVER HOSE**

Exclusive Eastman design  
 directs flow of hose into  
 machined recesses of insert  
 and coupling body. Doubles  
 the hold, assuring longer  
 service. Pages 26 & 27.



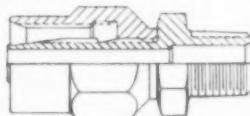
**PERMANENTLY ATTACHED FLANGE HEAD COUPLINGS**

Attractive, low cost permanent  
 hose attachment—plus  
 convenience of split-flange  
 head couplings with 0 to 90°  
 stems permitting full 360°  
 positioning. Pages 20 & 21.



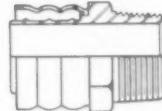
**REUSABLE COUPLINGS FOR COTTON COVER HOSE**

Eastman engineered two-  
 piece coupling can be as-  
 sembled without stripping  
 hose. (Can also be used on  
 thin rubber cover hose with-  
 out removing cover.) Full  
 details on pages 24 & 25.



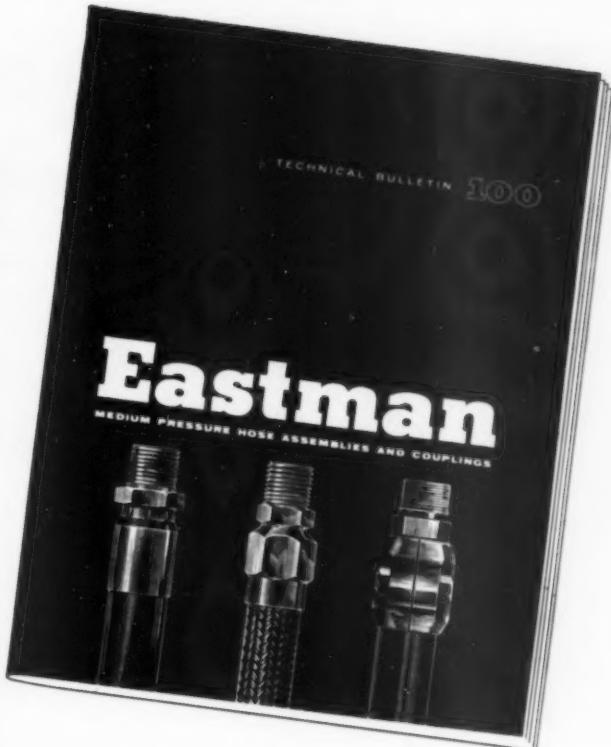
**PERMANENTLY ATTACHED COUPLINGS FOR SUCTION HOSE**

For use on spiral wire re-  
 turn lines. Maximum orifice  
 permits rapid return of hy-  
 draulic fluid assuring  
 adequate supply from lever  
 to load for top payload  
 power. See page 31.



**Eastman**  
*first in the field*

**SAFEGUARDING AMERICA'S LIFELINES OF MOBILE POWER**



**ARRANGED FOR YOUR CONVENIENCE  
 TO MAKE IT EASIER FOR YOU TO:**

**Locate your required assemblies  
 Determine the proper couplings  
 Specify according to pressure**

EASTMAN'S New Technical Bulletins on Hydraulic Hose and Tube Assemblies are the talk of the trade!

Here's the second in the series which you will want to send for right away—Technical Bulletin No. 100 on Medium to Low Pressure Assemblies. Working Pressures range from 3000 psi to 75 psi (for return suction lines).

Easy-to-use tables arranged opposite dimensional drawings for the entire Eastman line of Couplings: Permanently Attached, Clamp Type, Flange Type and Reusable—for One Wire Braid Rubber Cover, Cotton Cover and Suction Hose—plus necessary adapters and tube fittings.

This is a necessary companion to the first in Eastman's New Series of Bulletins—No. 200, on High Pressure Assemblies. Be sure that your personnel is supplied with copies of each of these modern bulletins.

*Write today! Send the quick service coupon below.*

**EASTMAN MFG. CO., DEPT. PM-2, MANITOWOC, WISCONSIN**

Please send me ..... copies of Bulletin 100 on Medium to Low Pressure Eastman Assemblies for 1-wire braid hose.

Please send me ..... copies of Bulletin 200 on High Pressure Eastman Assemblies for 2-wire braid hose.

Also ..... copies of Bulletin 500 on Adapters and Adapter Unions.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_



## Painted for keeps

**Oakite CrysCoat® prevents rust,  
anchors paint to metal**

On painted metal products, rust is subversive—it attacks from below to cause peeling, flaking and blistering of the paint. The Oakite CrysCoat prepaint process, combining cleaning and phosphating, prevents rust—permanently.

At the same time, a CrysCoat surface makes the perfect base for paint adhesion. Result: CrysCoated products look better, last longer.

That's why so many makers of famous-brand metal products use the CrysCoat process to protect typewriters, metal desks and furniture, adding machines, household appliances, lighting fixtures . . . everything from toys to tractors.

There's an Oakite CrysCoat phosphate process—zinc or iron—to fit your spray or tank production line. Talk to your local Oakite man, or write for details to Oakite Products, Inc., 54 Rector Street, New York 6, N. Y.

### Who Uses CrysCoat?

Here is a representative handful of CrysCoat users:

- **Carrier**
- **General Electric**
- **National Lock**
- **Remington Rand**
- **Singer Mfg.**
- **Shaw-Walker**
- **Square-D**
- **Welbilt**
- **Westinghouse**



Technical Service Representatives in Principal Cities of U. S. and Canada  
For More Information Write No. 312 on Inquiry Card—Page 32

### Equipment Leasing

(Continued from page 196)

tively small, it is increasing steadily. Despite the original hesitancy among manufacturers to get into leasing, many are using it today as an added sales tool. Some offer leasing plans through their distributors and dealers.

Most leasing, however, is conducted by organized leasing companies. There are many local leasing companies in various sections of the country, although about one-third of all equipment leased is in the east north-central states. Most of the volume is handled by a few large national companies—like United States Leasing Corporation, Boothe Leasing Corporation, and Nationwide Leasing Company. U.S. Leasing alone had rental receivables of almost \$29 million last year, while Boothe's was only slightly less.

#### Financial Data Required

These leasing companies buy the equipment you want from the manufacturer for cash and lease it to you. Some leasing firms even train the manufacturer's sales force in the use of leasing as a sales device. You make the arrangements with the manufacturer and decide exactly what equipment you want. The machines and tools are delivered to you directly from the manufacturer without any intermediate steps. Title to the equipment is vested in the leasing company, which bills you each month for the amount due. Your company generally provides all maintenance and service, as well as paying freight and installation charges.

Leasing companies are interested in the same information about your company as other financing organizations. This includes your Dun & Bradstreet credit rating, the nature of your business your balance sheet, and your profit and loss statement. In addition, most leases have to be written for a minimum amount.

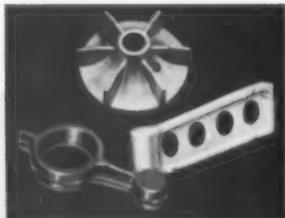
Leasing can be an extremely profitable tool for P.A.'s. It takes a lot of careful investigation, but it can be highly useful for your company.



**ONE DEPENDABLE SOURCE** for all your fabricated metal parts

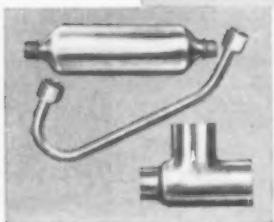
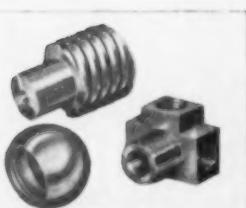
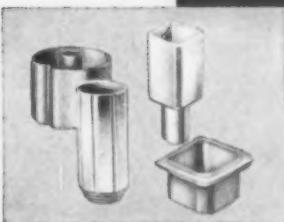
## only MUELLER BRASS CO. offers *all these metal fabricating methods to assure you the best product at the best possible price*

To obtain the desired physical and design requirements in a part at the lowest unit cost, there is usually one specific process by which that part can be most successfully and economically manufactured. Because the Mueller Brass Co. offers all these methods of production, you get sound engineering, the best method of fabrication and the assurance of getting the best product at the lowest cost. Sales and engineering service is available to you at Mueller Brass Co. offices throughout the United States. Make Mueller Brass Co. your one dependable source for all your fabricated part needs.



### forgings

The Mueller Brass Co. is the world's largest producer of brass, bronze and aluminum forgings.



### impact extrusions

The Mueller Brass Co. now offers "Cold-Prest" non-ferrous and ferrous impact extrusions. Flexible new facilities makes practical either long or short production runs of simple or complex shaped parts on an economical basis.

### screw machine products

The Mueller Brass Co. maintains one of the largest automatic screw machine departments in the country, specializing in the manufacture of non-ferrous parts . . . completely equipped to perform secondary operations.

### powder metal parts

Precision ferrous and non-ferrous powder metal parts are available from Mueller Brass Co. through its subsidiary, The American Sinteral Corporation.

### castings

The Mueller Brass Co. has a modern foundry equipped to produce quality brass and bronze castings to your specifications.

### formed copper tube

The Mueller Brass Co. offers complete facilities for producing formed copper tube shapes and assemblies to the most demanding tolerances.

### also producers of:

Super Cutting Red Tip Brass Rod • Aluminum Extrusions • Aluminum Sheet, Coil and Strip • Plastic Pipe and Fittings • Copper Tube and Solder Type Fittings.



**MUELLER BRASS CO. PORT HURON 30, MICHIGAN**

FEBRUARY 16, 1959

For More Information Write No. 313 on Inquiry Card—Page 32

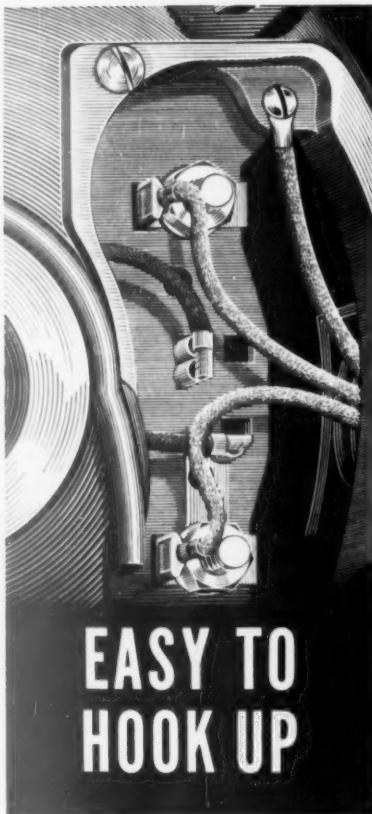
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201



# PURCHASING AGENTS...

# REDUCE

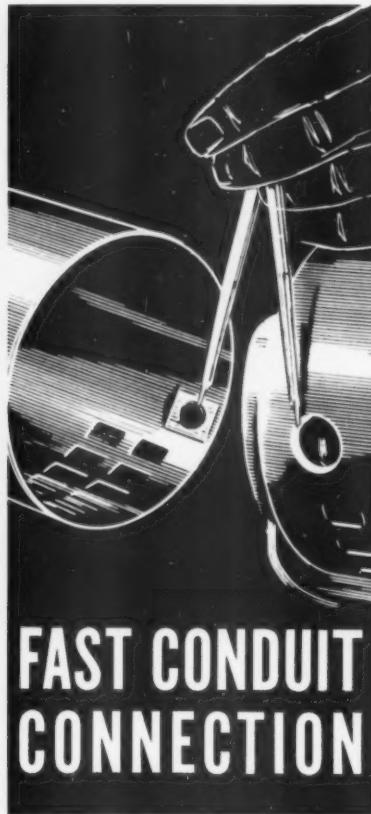


## EASY TO HOOK UP

This enlarged wiring compartment saves hook-up time on the assembly line

Wiring compartments on G-E motors are now roomier and easier to work with. An enlarged opening allows greater accessibility. A narrower terminal board makes it easy to bring in leads from conduit.

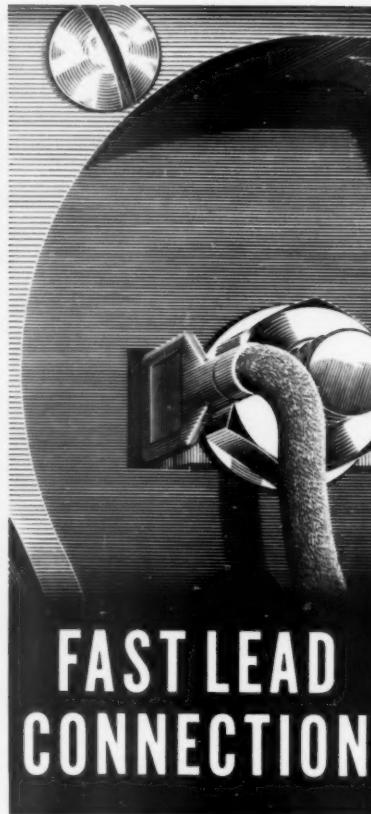
There are no extra studs on the board to result in "hook-up confusion." Easier, more accurate wiring results. How much can this extra value save you?



## FAST CONDUIT CONNECTION

Special speed nut permits conduit connection from outside; cuts connection time 50%

Conduit connection is greatly simplified by single-thread speed nut welded inside the motor shell. This feature permits connection of conduit from outside the motor in half the time normally required with conventional lock nut. No waste of time fumbling with a loose nut, no possibility of dropping it in the motor or on the floor. It's a real time saver!



## FAST LEAD CONNECTION

Now plug-in connectors on all terminals cut wiring time in half

For the first time on all single-phase Form G motors, General Electric offers time-saving quick connectors on all external and internal contacts.\*

Wiring time is cut in half. (Studs have been retained for conventional wiring.) Simply plug in the leads. Fast, positive connections are assured. Try it yourself. You'll like this new General Electric extra value.



**GENERAL ELECTRIC**

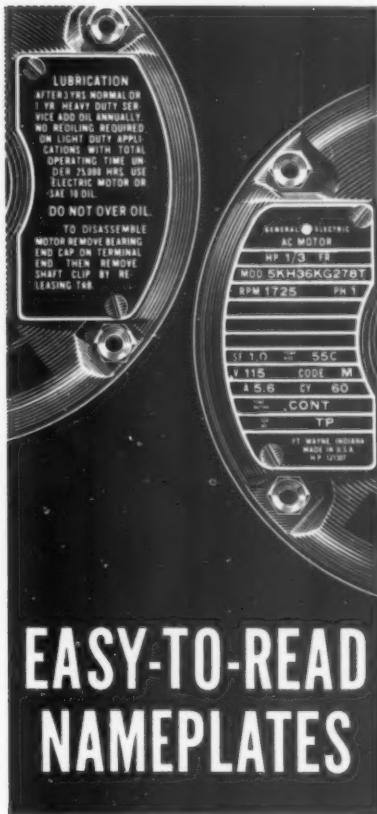
**GENERAL ELECTRIC**

**GENERAL ELECTRIC**

**JUST ASK YOUR GENERAL ELECTRIC SALES ENGINEER**

Consider these 6 big reasons why General Electric Form G motors

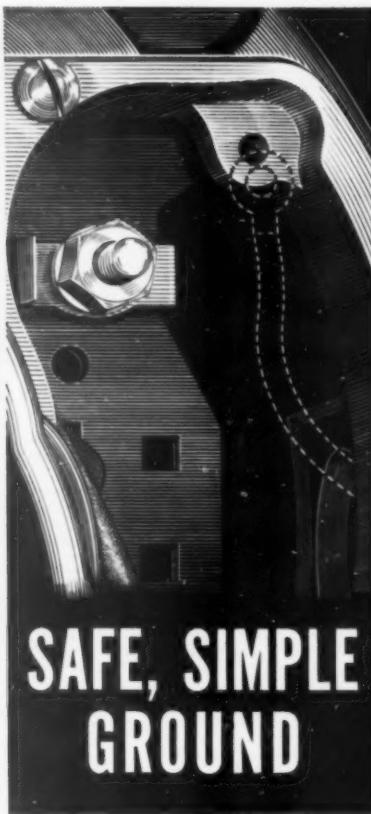
# ASSEMBLY TIME



## EASY-TO-READ NAMEPLATES

New permanent instructions and data  
simplify installation and servicing

Operating data on Form G motors is both legible and permanent to help you select, install and service without guesswork. The nameplate is engraved, then paint-filled for extra readability. Oiling instructions are lithographed on the terminal box cover plate. Lets your customers know exactly how *little* maintenance is required. See this extra value!



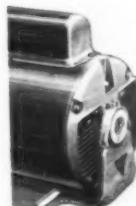
Built-in grounding lug permits fast, easy  
grounding to meet UL standards

Now on Form G motors you get a built-in grounding lug that meets UL standards for grounded third lead when required. With a self-forming screw you can make ground connections quickly, easily and inexpensively. This feature assures safe, permanent grounds. There's no chance of disconnection during maintenance. Ask for details on this extra value.



Small, light Form Gs easy to assemble;  
cut handling and shipping costs

Up to 50 per cent lighter, 40 per cent  
smaller than old-style designs, General  
Electric Form Gs are easier to handle,  
faster to install. Compact motor re-  
quires less mounting space and material;  
cuts down "assembly-line fatigue"  
caused by heavier  
motors; reduces  
stock space and  
shipping costs. You  
can't help but *save*  
with compact, light-  
weight Form Gs!

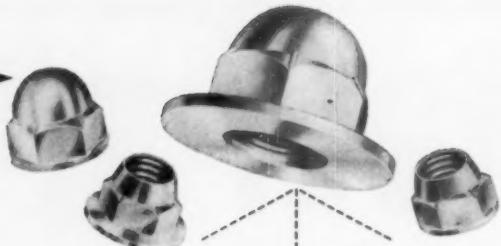


**GENERAL  ELECTRIC**

## ABOUT THE NEW FORM G "EXTRA VALUE" FEATURES

For More Information Write No. 314 on Inquiry Card—Page 32

another new  
exclusive  
**GRC idea**



## **GRC die cast zinc alloy washer-base CAP NUTS**

GRC makes new exclusive low cost fasteners with won't mar soft surfaces. INTEGRAL WASHER BASES for better fastening performance and appearance. Use with oversize or offset holes. Prevents wrench marks. All these advantages at no extra cost. Use standard diameter nuts wherever regular cap nuts could be used alone—full diameter nuts wherever regular cap nuts would be used with separate washers.

#4 through 1/2"-14 hex sizes.

- Rustproof and corrosion resistant
- No tool marks or cut off burrs
- Save assembly time—inventory costs

Write today for fastener bulletin, prices, spec. sheets.

### **GRIES REPRODUCER CORP.**

World's Foremost Producer of Small Die Castings  
39 Second St., New Rochelle, N. Y. - NEW ROCHELLE 3-8600  
Be sure to see GRC at the I.R.E SHOW • BOOTH 4108

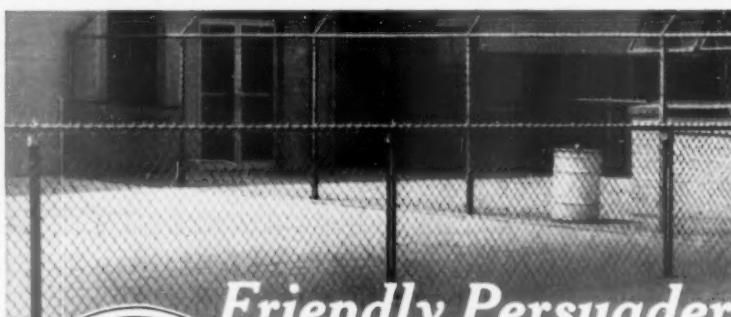
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**GRIES**



standard  
washer  
diameter  
full washer  
diameter  
Both closed end and open  
end washer base cap nuts  
available with full and  
standard washer diameters.



## ***Friendly Persuader***



Only Continental is made of  
KONIK STEEL for greater ten-  
sile strength and increased rust  
resistance.

A friendly suggestion to RESPECT PRIVACY is the first duty of a fence. But it must also be strong to resist illegal entry, permanent to minimize maintenance cost, yet attractive in appearance. Continental Chain Link Fence answers BEST because it's stronger, and at less cost, because it lasts longer.

Write for PLANNED PROTEC-  
TION. Shows 10 styles, 25 uses,  
14 features of Continental Fence.



## **CONTINENTAL® CHAIN LINK FENCE**

CONTINENTAL STEEL CORPORATION • KOKOMO, INDIANA

For More Information Write No. 316 on Inquiry Card—Page 32

## **Are You "Stealing" Your Suppliers' Ideas?**

(Continued from page 83)

service. If the vendor's price is no more than 5% higher than the others, the order is his.

There are even some concerns who permit the unlucky vendor who loses both the order and his idea, to submit a bill for their design and systems service. This has its pitfalls. Some of these unhappy vendors not only total up their creative time but add their lost commission in setting the total price of the bill.

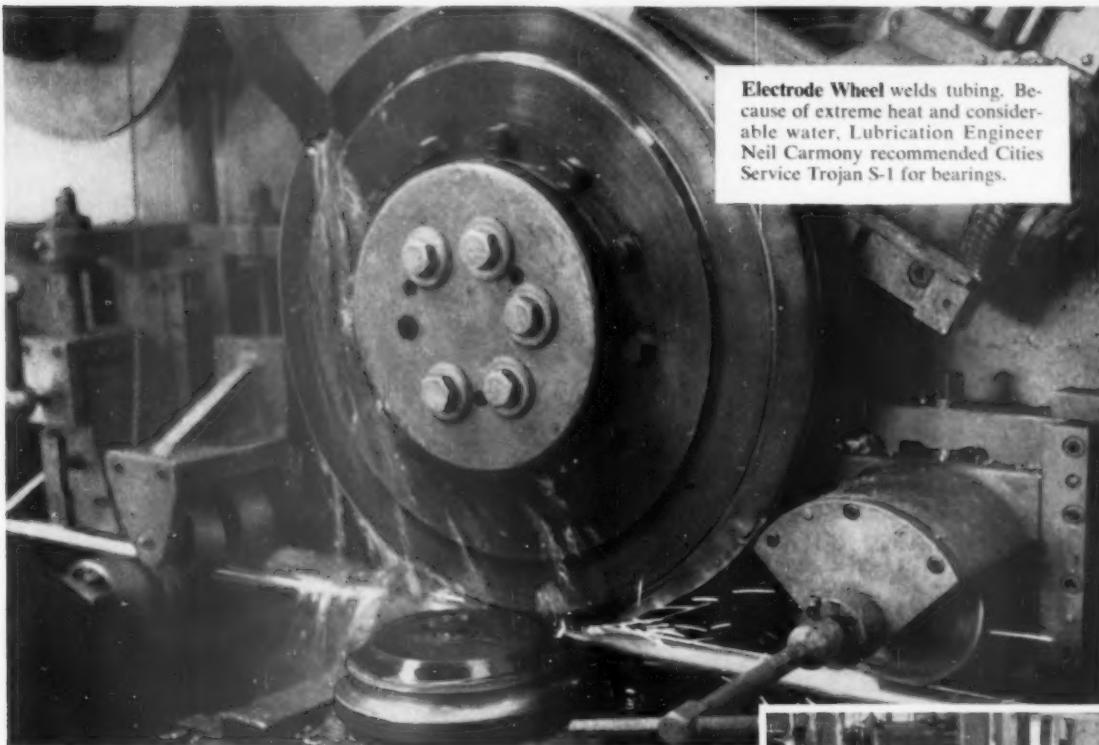
### **Determining The Value**

Another drawback to this last method is that some printers have a completely unrealistic conception of the value of their mental efforts. One instance: A vendor whose exact part in the new system was unclear since he and the company had worked together on it, lost the order and was asked to set a price on his services. He figured that since he was a salesman with a quota of \$250,000 worth of business annually, each day of his time was worth at least a thousand dollars to his company! He finally came down to earth long enough to re-estimate the value of his contribution at \$1200. Since the total value of the order was \$1900, his self-appraisal was given short shrift and the answer was a loud "no". The whole affair ended unpleasantly.

This could have been avoided had it been handled in a business-like manner from the outset. Certainly this man's time was valuable. But the time to establish the exact value was prior to the acceptance of his help, not after. In that way, the buyer would have known the value of the man's services and could have decided then and there if the cost of his talents would equal the cost of the help needed.

This seems to be the most logical way to approach the problem. Under no circumstances however, should any company callously take ideas and methods from a vendor without paying for them in some way.

# New Tubing Mill Produces at Speed of 350 Feet Per Minute!



**Electrode Wheel** welds tubing. Because of extreme heat and considerable water, Lubrication Engineer Neil Carmoney recommended Cities Service Trojan S-1 for bearings.

## It's Cities Service for Hydraulic System and all lubrication

On January 1, 1957, P&H Tube Corporation put a new mill in production at Bossier City, Louisiana—the only one of its kind in the United States.

Equipped with special drives and worm gears, this unique mill actually produces at the rate of 350 feet per minute—twice the speed of conventional tubing mills!

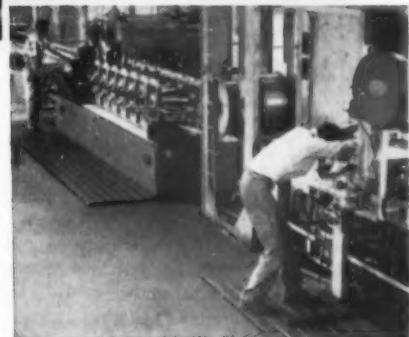
With speeds like this, you might expect lubrication troubles... but P&H Tube Corporation has none. One big reason is the careful study of each machine made by Cities Service Lubrication Engineer Neil Carmoney—and the lubrication recommendations he made.

In hydraulic units, for example, Carmoney recommended Pacemaker 200-T Hydraulic Oil... for he knew its ability to withstand the severest op-

erating temperatures and speeds. He knew that due to its exceptionally high viscosity index and superior compounding, Pacemaker 200-T would give maximum resistance to thinning, oxidation, rust and corrosion.

The wisdom of this decision, as well as the choice of other lubricants shown in the chart at right, was demonstrated recently when P&H Tube Corporation ran off 125,000 feet of tubing in an ordinary eight hour shift—with normal time-out for change-overs!

That's production with a capital P! And if you'd like to improve your production picture, a Cities Service Lubrication Engineer can help you, too. Call the nearest office or write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.



### What the Cities Service Lubrication Engineer Recommended

Hydraulic units

Pacemaker 200-T

Bearings

Trojan H-2 Grease

Drive units

Pacemaker Oils

Bearings by the mill's electrodes

Trojan S-1

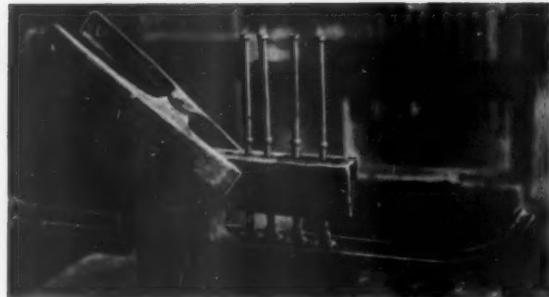
# CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

For More Information Write No. 317 on Inquiry Card—Page 32



Operator applying Special Handy Flux Type B-1 to components of de-icer tube before brazing.



Here, four de-icer assemblies in jig are being brazed by induction heat.



First step in brazing manifold. Operator applies Special Handy Flux Type B-1 to joint area prior to hand brazing. B-1 Flux is particularly effective in removing refractory oxides such as those formed in stainless steels and carbides.



Operator preheats joint area before hand feeding Handy & Harman silver alloy Braze 541.

## Here's how you can get uncompromising JOINT STRENGTH at LOW-COST... → Handy & Harman SILVER BRAZING

The first requisite for virtually any aircraft part is unimpaired strength. Jerden Manufacturing Company, Indianapolis, makes a number of tubular aircraft parts and components and each of them must pass rigid tests before acceptance. Three of the components are a hydraulic aircraft filter, a manifold assembly and a de-icing tube. Tubes and fittings are 410 and 321 stainless steel, brazed with Handy & Harman silver alloy Braze 541 (formerly 4772).

Handy & Harman's Braze 541 is specifically formulated for brazing stainless steels. It has a high flow point (1575°F), and its excellent strength at elevated operating temperatures especially recommends it for many aircraft component applications. Braze 541 is a "tailor-made" brazing alloy, designed to do a specific joining



Here, two different parts are being brazed. Operator in foreground hand feeds alloy on aircraft manifold joint while operator in background brazes nipple on hydraulic oil filter. Gas-air hand torches are used in both cases.

job and do it particularly well. It is an example of Handy & Harman's ability to supply a specific alloy to fit a specific need, a service that remains constantly available to you.

You may find that your metal joining requirements are more or less special or you may not be fully aware of what you require. In any case, we invite you to consult us about what you are joining and *would like to join better*. We may be able to help you from many points of view: economy, joint strength, conductivity, ease of production and many others.

### GET THE FACTS

Technical Bulletins T-1 and T-2 give the general characteristics of silver brazing alloys plus the compositions, melt and flow points of 32 separate alloys. Write for your copies.



Source of Supply and Authority on Brazing Alloys OFFICES AND PLANTS

ATLANTA, GA.  
BRIDGEPORT, Conn.  
PROVIDENCE, R. I.  
CHICAGO, ILL.  
CLEVELAND, OHIO  
DETROIT, MICH.  
LOS ANGELES, CALIF.  
GARLAND, CALIF.  
TORONTO, CANADA  
MONTREAL, CANADA

**HANDY & HARMAN**

General Offices: 82 Fulton St., New York 38, N.Y.

DISTRIBUTORS IN PRINCIPAL CITIES



# IF IT'S ALLOYED FROM COPPER YOUR BEST SOURCE IS CHASE!

Whatever your needs in copper alloys, you can fill them with a single order to your nearest CHASE warehouse or sales office. There you will get prompt service on any of more than 30 different alloys. Some of the outstanding ones are described below. In addition you can order non-ferrous forgings, aluminum and stainless steel from the same single source.

**New, unique SILNIC® BRONZE**...the Chase-developed age-hardenable alloy that combines high tensile and yield strength with high conductivity, excellent forming characteristics and excellent corrosion resistance.

**TELNIC® BRONZE**—available in rod only. A Chase development used for forgings and screw machine parts requiring high strength, hardenability, extensive machining, corrosion resistance.

**PHOSNIC® BRONZE**—another Chase development, available in rod and wire form for use in making rivets, screws, springs, electrical parts, etc. Can be heat-treated or age-hardened without loss of ductility. Outstanding in its combination of electrical and thermal conductivity with excellent mechanical properties.

**TELLURIUM COPPER**—in drawn bars, rod and wire form for use in forgings and screw machine parts requiring high conductivity, extensive machining, and excellent corrosion-resistance.

**OLYMPIC BRONZES**—copper-silicon alloys of relative high strength, marked ductility and workability, both hot and cold. *Typical uses:* Type A in sheet and strip form for angles, bearing plates, drawing and stamping. Type B in wire and rod form for machine screws, welding rods, bolts, etc.

**S-19 PROCESS ALLOYS**—give you a unique combination of surface and elongation, tensile, grain size and Rockwell to meet your specific needs. S-19 process alloys are the closest thing to tailored-to-measure metal available.

*Your nearest Chase representative can give you detailed information about Chase Engineering alloys and the other non-ferrous metals. You can reach him locally, or by writing Chase at Waterbury 20, Connecticut.*

**CHASE**   
BRASS & COPPER CO.  
WATERBURY 20, CONN.  
Subsidiary of  
**Kennecott Copper Corporation**

**The Nation's Headquarters for Aluminum, Brass, Copper and Stainless Steel**

Atlanta Baltimore Boston Charlotte Chicago Cincinnati Cleveland Dallas Denver Detroit Grand Rapids Houston Indianapolis Kansas City, Mo. Los Angeles Milwaukee Minneapolis Newark New Orleans New York (Maspeth, L.I.) Philadelphia Pittsburgh Providence Rochester St. Louis San Francisco Seattle Waterbury

For More Information Write No. 319 on Inquiry Card—Page 32

# Nothing too Big or too Small



Monorail Processing Machine

## DETREX EQUIPMENT Cleans Them All

Ranging from single stage, hand-operated degreasers through huge spray washers, or multi-stage processing machines, DETREX has the experience and ability to provide equipment that saves you money. If your cleaning process requires ultrasonics you can be serviced by the leader in the field with famous Detrex "Soniclean" units.

When DETREX equipment is applied to your specific needs, coupled with DETREX chemicals and DETREX service, you have the highest degree of quality and efficiency in the metal cleaning field. You can have it in your operation tomorrow. Find out about it today.

### Depend on DETREX for Every Metal Cleaning and Processing Need

- Solvent Degreasers
- Ultrasonic Equipment
- Industrial Washers
- Phosphate Coating Compounds
- PAINTBOND Compounds
- Aluminum Treating Compounds
- Alkali and Emulsion Cleaners
- PERM-A-CLOR NA (Trichloroethylene)
- Rust Proofing Materials
- Extrusion and Drawing Compounds
- Spray Booth Compounds



Ultrasonic Degreaser

**DETREX** CHEMICAL INDUSTRIES, Inc.

Box 501, Dept. P-259, Detroit 32, Mich.  
For More Information Write No. 320 on Inquiry Card—Page 32

### Patent Licenses

(Continued from page 94)

the commodities of competitors—if by so doing the effect were to lessen competition or tend to create a monopoly.

Of these tie-in contracts which Congress sought by statute to abolish, the House Judicial Committee said:

"Where the concern making these contracts is already great and powerful, such as the United Shoe Machinery Company, the American Tobacco Company and the General Film Company, the exclusive or 'tying' contract made with local dealers, becomes one of the greatest agencies and instrumentalities of monopoly ever devised by the brain of man.

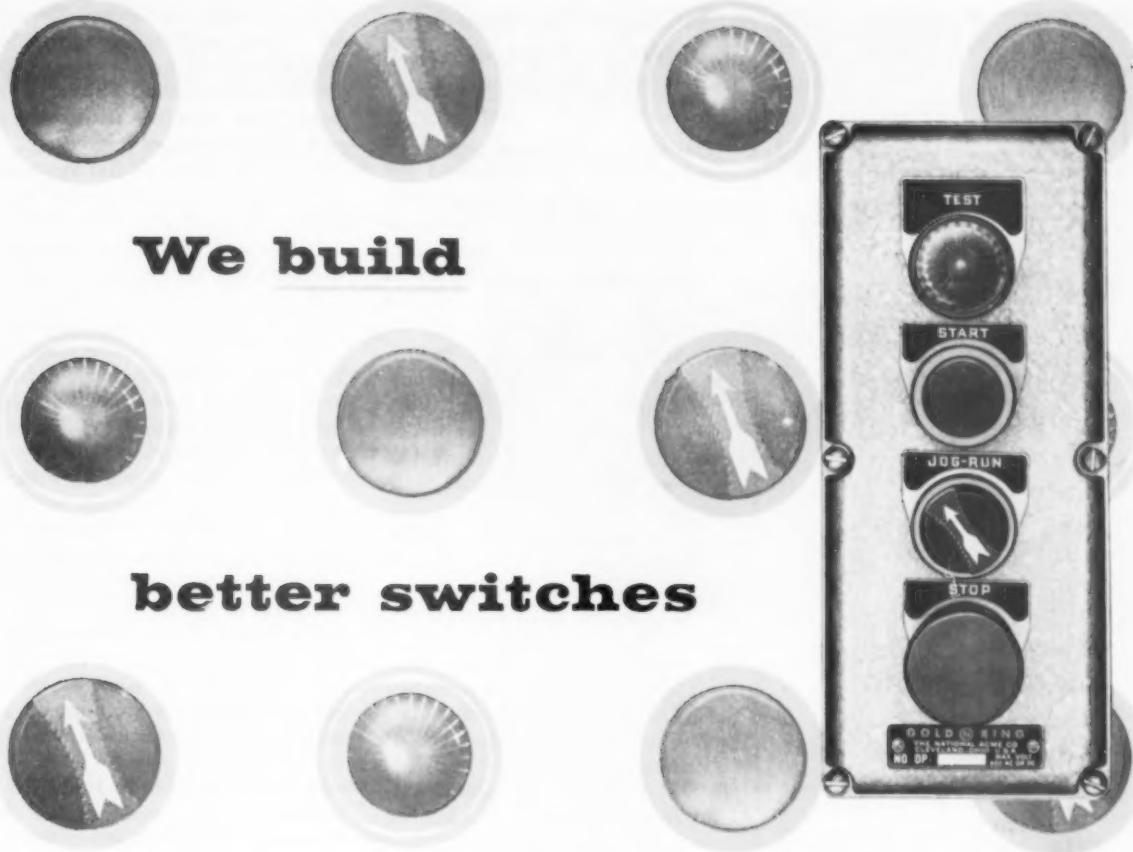
"It completely shuts out competition not only from the trade in which they are engaged already but from the opportunities to build up trade in any community where these great and powerful conditions are appearing under this system and practice."

#### Supreme Court Ruling

A few months later the Supreme Court ruled on a motion picture machine restriction: "The sale and purchase of this machine gives only the right to use it solely with moving pictures containing the inventions," identified with specific patents, the requiem of these tie-in sales was tolled.

The court said: "Whatever the right of the owner may be to control by restriction the materials to be used in operating the machine," it must be derived through the general law from the ownership of the property in the machine. This right cannot be derived from or protected by the patent law. The patent law grants only the right to an exclusive use of a new and useful discovery which has been made.

"This construction gives to the inventor the exclusive use of just what his inventive genius has discovered. It is all that the statute provides shall be given to him and it is all that he should receive, for it is the fair as well as the statutory measure of his reward for his contribution to the public stock of knowledge."



**We build**

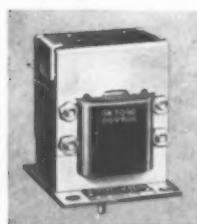
**better switches**

**because we can't buy them**

**...IT'S AS SIMPLE  
AS THAT...AND  
THEY COST NO  
MORE THAN  
OTHER SWITCHES**



**LIMIT SWITCHES.** A full line, originally designed for machine tool applications but now used wherever the highest reliability factors are required. Bulletin EM-51.



**SOLENOIDS.** A full line of standard and custom units for AC or DC. Push or pull types with capacities up to 25 lbs. Bulletin EM-52A.

We had to build Gold-N-Ring Control Switches to meet our own high reliability specifications . . . our reputation was a part of this important fact. We're machine tool builders. We can't afford to be responsible for costly down-time on important capital investment equipment due to inferior control switches. That's why we build them like precise machine tools . . . and why it will pay you to check with us.

A wide range of basic units meets practically every need . . . as well as completely assembled stations in 1 to 4 button sizes to meet your electrical specifications. Ask our representative to call, or send for Bulletin ECS-56 . . . the complete selection and ordering guide.

ELECTRICAL MANUFACTURING DIVISION

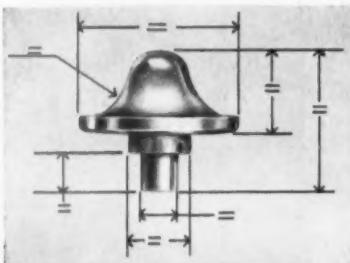
**National  
Acme**

THE NATIONAL  
ACME COMPANY  
191 E. 131st STREET  
CLEVELAND 8, OHIO

For More Information Write No. 321 on Inquiry Card—Page 32



**OVER 10 TIMES  
THE RATE  
AT 50% SAVING  
IN RAW MATERIAL**



**Another example of how  
Hubbell Cold Heading  
produces Better Parts at  
Faster Speeds, at Lower Cost**

**THE PART:**

Click Button

**THE MATERIAL:**

Brass

**THE METHOD:**

Hubbell cold heading in place of screw machining.

**THE RESULT:**

This brass click button was machined previously from bar stock, involving several different operations that removed nearly 50% of the total weight of the original stock . . . a wasteful, time-consuming, costly process.

Hubbell now produces essentially the same part at tremendous savings in time and material cost.

a. Production is increased from the original rate of 5.5 pcs. p.m. to cold heading rate of 60 pcs. p.m.

b. Labor, overhead and material cost has been reduced 36%.

c. The finished part is stronger, more accurate, with greater uniformity.

**Hubbell Cold Heading may provide equally dramatic results for you.** Whether it is presently cold headed or not, send blueprint of part or sample for analysis and estimate.

**HARVEY HUBBELL, Inc., Machine Screw Dept.**  
Bridgeport 2, Connecticut

Kindly estimate on the enclosed  
sample (blueprint) Quantity \_\_\_\_\_

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

For More Information Write No. 308  
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## No Right Answers In Materials Management

(Continued from page 71)

The above examples provide a clue as to why an integrated approach to materials management is absolutely essential to overall profit objectives. Successful materials management demands careful balancing of inter-related materials objectives. Not only do materials objectives vary in importance from company to company. They also vary from time to time. It is the job of the materials manager to translate over-all policies into specific materials policies.

Unfortunately, primary materials objectives conflict with one another. (This is illustrated in the table in this article.) Concentration on one objective always brings sacrifices in the achievement of at least one other objective. The most obvious contradiction is between the objectives of high inventory turnover and low prices. A buyer can almost always reduce prices if he is willing to buy in larger quantities. But this raises inventories and cuts turnover. So achievement in one area brings sacrifices in another.

### Basic Organization Principle

All this proves that "you never get something for nothing." In the materials management area, it also points to something else: a basic principle of organization. If a decision must be made among conflicting objectives, then there must be someone available to make that decision.

Every organization needs a materials manager. He should be responsible for the achievement of all of the primary objectives of materials management. (How else can he reconcile these conflicting objectives?) This means he should directly control the purchasing, material control, inventory control, receiving, shipping, traffic, and materials handling functions.

The materials manager should be a top official of his company for two basic reasons: First, he heads a basic function of the business and the materials point-of-view is a critical one in many

overall policy decisions. Second: he should be close enough to top management to be able to quickly re-balance materials objectives to bring them into line with shifts in overall company objectives.

With the conventional approach to materials organization (i.e. where purchasing, production control, and traffic are separate, independent functions), it is difficult, if not impossible to do a good job of materials management. Why? Because only one man, the president of the company, is fully responsible for meeting all the inter-related objectives of materials management.

The purchasing manager can't do the job; he's certainly not primarily responsible for all nine of the primary objectives (inventory control being the most critical that is not under his control in most cases). Nor can the production control manager or the traffic manager do it. As a result, materials management is often a series of compromises between various personalities.

The only man who is fully responsible, the president of the company, is usually much too involved in sales and engineering problems to worry much about materials management. So there is a real need for a materials manager. And the best way to get one is to give the purchasing executive the authority to do a complete materials management job.



"Tell me, how do you always manage to be the first one in here?"



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For 20 years MICRO SWITCH has been first in the development, design and production of precision switches.

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MICRO SWITCH field engineering offices and hundreds of Authorized Distributors blanket the country. There is always a MICRO SWITCH man near you.

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The two-word name MICRO SWITCH is NOT a generic term. It is the name of a division of Honeywell.



A MICRO SWITCH technician checks the condition of a switch that has been test-operated under electrical load at 600° F. Tests like this are part of the rigid MICRO SWITCH program of quality control.



## NEW!

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MICRO SWITCH PRECISION SWITCHES

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## Industry's chemicals:

### WHAT'S MAKING NEWS?

The biggest news in industrial chemistry hasn't been released yet—because it hasn't been made. But it may be tomorrow! And you may preview it here. Research chemists across the country are working on new processes and products which will have vital significance to profit-minded manufacturers. These messages are designed to keep you abreast of the facts by presenting them in easily read form.

You may wish to check certain items in this advertisement and forward to those concerned in your company.

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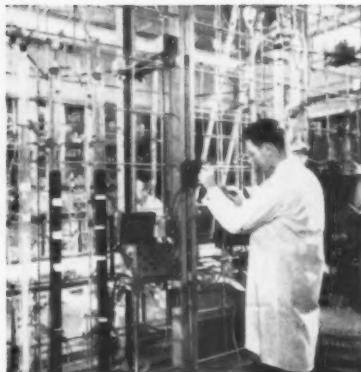
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## UNUSUAL "EXCHANGE" CHEMICAL CHALLENGES INDUSTRY

Ion exchange resins have been performing chemical miracles for years—chiefly in that familiar household tool, the home water softener. But scientists know that the real potential of ion exchange has scarcely been touched. Research men at Dow feel that, within a few years, at least half the ion exchange resins produced will be used in fields other than water treatment.

The principle of ion exchange has, of course, been known to chemists for many years. Stated simply, the resins merely trade ions—tiny electrically charged particles—for ions of a different type whenever they come in contact with them. In water softening, calcium and magnesium ions, which make water hard, are removed by passing the water through a bed of resin such as Dow's widely used Dowex®. Troublesome magnesium and calcium ions are traded for harmless sodium ions.

The future of ion exchange chemistry is as broad as the imaginations of thousands of research chemists. Its applications are almost limitless. One of the most interesting is in the separation of a relatively unexplored group



Constant laboratory research has led Dow to many ion exchange resin improvements in recent years.

of elements known as "rare earths". This group (e.g. terbium, samarium and yttrium) constitutes nearly one fifth of all the known elements but has

been largely ignored by chemists in the past because the extreme similarity of its members made it almost impossible to separate one from another. Recently, great strides have been made in this field, using the ion exchange principle. As a result, you will hear much more of the rare earths and their useful possibilities in the years ahead.

In more immediate commercial use, ion exchange resins are widely used in the removal and concentration of uranium from ore which has been leached in an acid solution.

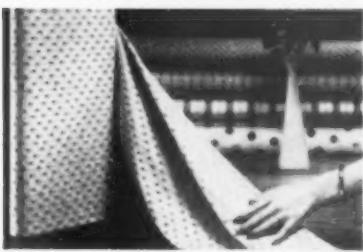
Medically, the process is used to remove calcium from blood by exchanging it for sodium in the resin. Since blood must have calcium to clot, this is an ideal method of preventing clotting when it is medically undesirable, as in the drawing of blood for transfusions.

In the isolation of amino acids (widely used in animal feed supple-

### DOW CHEMICALS BASIC TO INDUSTRY

Glycols, Glycol Ether • Amines and Alkylene Oxides  
Benzene Derivatives • Inorganic Chlorides • Alkalies and Halogens  
Solvents • Germicides • Fungicides • Herbicides • Fumigants  
Hundreds of other Chemicals • Plastics • Magnesium

ments), in the decontamination of chromic acid solutions during the plating process, and in a thousand other ways ion exchange resins are proving their worth. The ion exchange process, according to Dow, is rapidly joining the ranks of distillation, evaporation, and crystallization as an established unit process. Ion exchange resins are useful in isolating materials, classifying them, and also as catalytic agents.



#### REMARKABLE DYE SOLVENT gives fabrics brighter, faster colors

Many textile manufacturers are receiving excellent performance from a new dye solvent recently put on the market by Dow. Dowanol DE-SG, one of the many Dowanol<sup>®</sup> compounds (glycol ether solvents), is used as a solvent with pastes containing alkyls to control evaporation, aid penetration and leveling.

It is especially effective when used with indigo type dyes. Just a little Dowanol DE-SG greatly increases solubility of the dye. It provides brighter colors and better resistance to crocking. (Crocking is the soiling or staining of adjacent material by the coloring matter in the fabric.) More and more textile people are benefiting by Dow's consistent quality which assures them uniform end product.

Other important uses of the Dowanol products are in today's modern, heavy-duty brake fluids, fast drying lacquers, cosmetics and many other areas where extremely versatile solvents are needed.

★ ★ ★

If these news reports have stirred your interest, you can get complete information on any of the chemicals mentioned (or any other Dow chemical) from THE DOW CHEMICAL COMPANY, Midland, Michigan. Chemicals Sales Dept. 605EE2-16.

THE DOW CHEMICAL COMPANY  
Midland, Michigan



#### SEPARAN speeds uranium processing

Separan<sup>®</sup> NP10 is a flocculating agent, an "octopus" chemical which gathers solids into small masses so that they quickly settle to the bottom of a body of liquid. Thus, desired solids may be recovered, unwanted ones eliminated.

Not long ago, a large mining company was attempting to improve throughput in its uranium processing operation. Its development engineers evaluated and used Separan NP10. Net result: an average filtering rate

better than twice what had been achieved before, as well as much greater metal value recovery.

Separan flocculants have countless uses outside the mining field, too. One of the best known is in the clearing of waste water in industrial operations. Processors requiring purer water for their manufacturing operations are also relying more and more on this speedy flocculant. In case after case, its use provides more efficient operation as well as greater economy.

### OTHER DOW CHEMICALS of interest to you



#### CAUSTIC SODA

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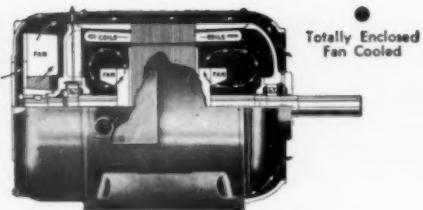
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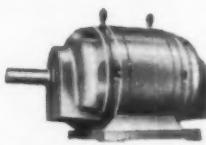
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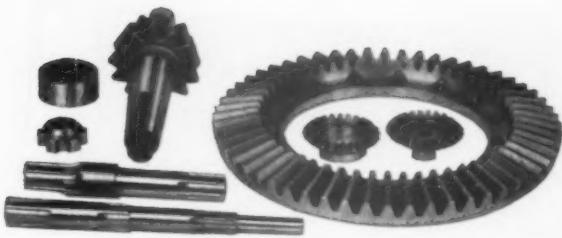


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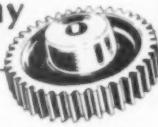
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Give 5 To 10 Times  
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This newest addition to the Sandvik spring line is made from a premium steel for applications where performance demand outranks cost.

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Sandvik 2R25 springs are being supplied in either spiral or Sandvik's exclusive cross-curved types. Write or phone for further information on these super springs or on Sandvik's broad line of standard quality springs. Free literature, case history files and specific spring design assistance are available to you.

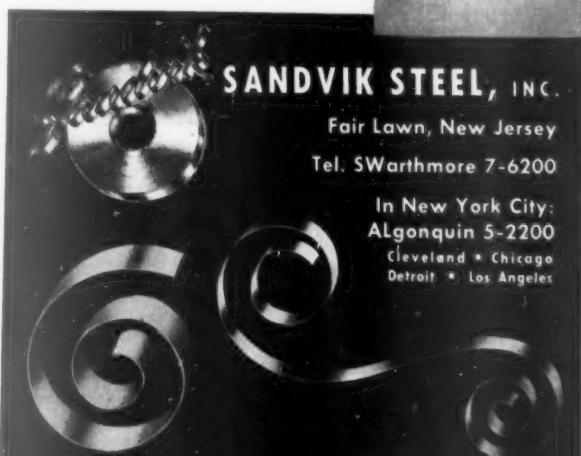


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TO MINIMIZE FATIGUE,  
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Want to cut energy-robbing fatigue? Look for body-contoured backrest, large comfortable seat, spring steel backrest support that maintains correct firmness and fit for life of chair.

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FOR EFFICIENCY,  
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Fit the chair to the job, and worker output rises! 4-Way adjustable back enables individual to move backrest up, down, backward, forward so it correctly supports small of back. Telescoping legs, adjustable at 1" increments, keep the worker at right height for the bench and job.

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**SEND FOR FREE COMPLETE INDUSTRIAL SEATING CATALOG #7001**

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## Employment Service

### DEPUTY CITY P. A.

March 3 is the closing date for applications for the position of deputy city purchasing agent of Milwaukee, Wisconsin. Must have 5 years experience (govt. work preferred) OR college degree in public administration or related fields plus 2 years actual purchasing experience. Must be between the ages of 25 and 45. Each candidate must also take a written examination to be given at various locations for the convenience of those living outside Milwaukee. Starting salary: \$8194. Write to: Examining Division, City Service Commission, Room 701, City Hall, Milwaukee 2, Wisconsin.

**Experience:** Have been in the purchasing field 11 yrs. Have been in the appliance manufacturing field, machinery building for the roofing industry and farm co-op field. Production maintenance, and utilities materials buying has given me a wide and varied scope in the purchasing field.

**Education:** Two years night college—courses in banking, commercial law, business English and purchasing. Attended Value Analysis Seminar.

**Will relocate.**

Write: Box 329.

**Experience:** Twenty years diversified aircraft experience including production, sales and accounting. Ten years as director of purchasing, in a staff position, for major aircraft firm.

**Education:** Purchasing, Accounting, Business Management, Drafting as well as Radio and Electrical background.

**Prefer** progressive southern firm.  
Write: Box 330.

**Experience:** Three years in Supply Corps, U. S. N. R. Work in corps indirectly related to purchasing. However, desire career in purchasing.

**Education:** B.S. in Industrial Adm.  
**Prefer:** East of Rockies.

Write: Box 332.

**Experience:** All phases of direct procurement from foreign suppliers of industrial materials. Five additional years buying stainless, carbon and non ferrous metals; wire cloth and metal powders; flanges, fittings and electronic components. Complete responsibility for developing reliable sources.

**Education:** BBA, Foreign trade, (1949), 2 years basic engineering; MBA industrial management study currently.

**Will relocate.**

Write: Box 333.

**Experience:** Four years as purchasing agent for metalworking plant. Two years as cost and general accountant. One and a half years as inventory control supervisor. Ex naval supply officer with one year as general paymaster, and recently three years as government research contracts administrator. Wide general knowledge of materials & sources of supply. Extensive administrative training.

**Education:** B.S., Business Administration; major Accounting. Naval Supply School course.

**Will relocate:** Southern California area.  
Write: Box 335.

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Must select vendors and negotiate prices for all production, maintenance and capital investment items. Only buyer for entire operation. Have at least four years experience in mass production buying. Must be familiar with appearance items. Prefer a person who has experience with wood cabinets. Salary range: \$7800-\$9500, depending upon experience. Write Box 510.

**Experience:** Currently and for ten years purchasing agent for electronics manufacturing plant. Prior ten years also purchasing, stock control, inventory control and warehouse management. Assume complete charge of all material problems prior to manufacturing. Exceptional diversification.

**Education:** Accounting and business (hobby is law).

**Will relocate.**  
Write: Box 327.

**Experience:** Purchasing agent six years—sr. buyer two years in packaging—machinery manufacturing, aircraft manufacturing and missile research industries. Familiar with military specifications and government procurement regulations. Extensive experience in organizing and managing all phases of purchasing, expediting and material control.

**Education:** B.S. in Mech. Engineering. Graduate studies in Business Administration, Member N.A.P.A.

**Will relocate.**  
Write: Box 331.

**Listings in this department are offered without charge.** Both purchasing department personnel interested in changing jobs and employers in search of replacements or additions to their departments may take advantage of this service. When writing, specify whether you want the applicant's form or the employer's form. Address all correspondence to Employment Service Department, PURCHASING Magazine, 205 East 42nd Street, New York 17, New York.

**Experience:** Seventeen years of experience in all phases of industrial purchasing from expediting through administration with large petroleum corporation. Familiar with petroleum manufacturing, marketing and distribution.

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Write: Box 324.

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# Advertisers In This Issue

Acco Products, Inc.	152	General Electric Company	
Adams Company, The	217	Apparatus Division	202, 203
Aeroquip Corp.	215	Lamp Division	141
Air Reduction Sales Co. & Subsidiaries	36	Metallurgical Prod. Dept.	43
Alan Wood Steel Co.	124	Tube Dept.	133
Allen Mfg. Co.	61	Wiring Device Dept.	126
Alloy Steel Products Co., Inc.	60	Gibson Co., William D., The Goodrich Industrial Products Company, B. F.	40, 3
Aluminum Company of America	217	Goodyear Tire & Rubber Co., Inc.	6
Amchem Products Inc., Metalworking Chemicals Div.	195	Grant Pulley & Hardware Corp.	33
American Brass Co., The	16	Graphic Controls Corp.	100
American La France Division of Sterling Precision Corp.	174	Gries Reproducer Corp.	204
American Screw	127	Gulf Oil Corp.	39, 31
American Sealants Company	162	Hammill Paper Company	155
American Smelting & Refining Co.	47	Handy & Harman	206
Ames Co., B. C.	216	Harter Corporation	153
Anaconda Copper Mining Co. & Subsidiaries	16	Hassall Inc., John	65
Anchor Post Products, Inc.	196	Hewitt-Robins	102
Armour & Co. & Subsidiaries, Ammonia Div.	49	Hubbell Inc., Harvey, Machine Screw Dept.	210
Associated Spring Corp.	40	Hvatt Bearing Div., General Motors Corp.	62
Baltimore & Ohio Railroad, Freight Dept.	12	Illinois Tool Works, Shakeproof Div.	103
Barnes Co., Wallace	40	International Business Machines	149
Barnes Co., Ltd., Wallace, The	40	Interstate Motor Freight System	51
Bay State Abrasive Products Co.	172, 173	Jeffrey Manufacturing Company (Ind. Div.)	189
Bearings Co. of America Div. of Federal Mogul-Bower Bearings, Inc.	171	Koh-I-Noor Pencil Company, Inc.	152
Bearings, Inc.	123	Lancaster Glass Corp.	27
Beebe Chemical Division of F. M. & C. Co.	105	Lavelle Aircraft Corporation	98
Behr-Manning Corp.	4th cover	Lubriplate Div., Fiske Bros. Refining Co.	52
Billings & Spencer Co., The	134	Lyon Metal Products, Inc.	131
Black & Decker Mfg. Co.	110, 111	Marsh Corp., Jas. P.	216
Blaisdell Pencil Co.	159	McGraw Edison Co., Voicewriter Div.	147
Bliss & Laughlin, Inc.	108	Micro Switch, a Div. of Minneapolis-Honeywell Regulator Co.	211
Borroughs Mfg. Co., Subsidiary Amer. Metal Prod. Co., of Detroit	184	Milford Rivet & Machine Co.	114
Bostitch, Inc.	56	Miller Falls Company	29
Boston Gear Works	135	Minnesota Mining & Mfg. Co.	223
Bound Brook Oil-Less Bearing Co.	193	Moore Business Forms	145
Bower Roller Bearing Division-Federal-Mogul-Bower Bearings, Inc.	161	Morse Chain Co.	128, 129
Brown Paper Co., L. L.	159	Mueller Brass Co.	201
Buffalo Bolt Co., Div. of Buffalo Eclipse Corp.	188	National Acme Co., The	209
Bulldog Electric Products Co.	167	National Cash Register Co. (NCR Paper)	151
Campbell Chain Co.	122	National Malleable & Steel Castings Company	42
Capewell Manufacturing Co., The	25	New Departure Div. of General Motors	8
Carpenter Steel Co., The	180	Norton Co.	4th cover
Central Paper Company	107	Oakite Products, Inc.	200
Chase Brass & Copper Co., Inc.	207	Ohio Div., Associated Spring Corp.	40
Chrysler Corp., Amplex Div.	169	Parker-Kalon Div., General Amer. Trans. Corp.	182, 183
Cincinnati Milling Machine Co.	143	Peerless Steel Equip. Co.	148
Cities Service Oil Co.	205	Polymer Corp. of Penn., The Positive Lock Washer Co.	140, 170
Clark Equipment Co., Industrial Truck Div.	101	Powell Valves	279
Classified Advtg. Section	214	Raymond Mfg. Co.	40
Cleveland Container Co., The	166	Republic Steel Corp.	168, 169
Colorado Fuel & Iron Corp.		Ridge Tool Company, The	178
Wickwire Spencer Steel Div.	53	Riegel Textile Corporation	10
Columbus Southern Chemical Corp.	66	Rochester Products, Div. of General Motors	67
Conover-Mast Purchasing Directory	219	Roebeling's Sons Co., John A.	159
Continental Can Company	162	Rohm & Haas Company	3rd cover
Continental Diamond Fibre, Div. of the Budd Co., Inc.	164	Rollway Bearing Company	190
Continental Felt Co.	134	Ross-Martin Co.	126
Continental Steel Corp.	204	Royal Metal Manufacturing Company	218
Crosscut Paper Mills	57	Rust-Oleum Corporation	34, 35
Crucible Steel Company of America	119, 191	Ryerson & Son, Inc., Joseph T.	68
Dana Corp.	112	Saginaw Steering Gear Div., General Motors Co.	63
Decatur Casting Company, The	134	Sandsteel Spring Division-Sandvik Steel, Inc.	218
DeLaval Steam Turbine Co.	26	Scott Paper Company	177
Denver-Chicago Trucking Co.	221	Shell Chemical Corp.	2nd cover
Detrex Chemical Industries, Inc.	208	Signode Steel Strapping Co.	115
Do All Company, The	214	Simonds Abrasive Company	163
Dow Chemical Co., The	212, 213	SKF Industries, Inc.	1
Dow Corning Corp.	176	Skil Corporation	186, 187
Dunbar Bros. Co.	40	Secony Mobil Oil Co., Inc.	55
Eastman Manufacturing Co.	199	Standard Oil Company	113
Eaton Mfg. Co., Reliance Div.	125	Standard Pressed Steel Company	24, 139
Elastic Stop Nut Corp. of America	117	Stanscrew Fasteners	32
Emery Air Freight Corp.	198	Studebaker-Packard Corp.	215
Erie Forge & Steel Corp.	99	Sugar Beet Products	130
Esterbrook Pen Co., The	146	Sun Shipbuilding & Dry Dock Co.	217
Exide Industrial Div., The Electric Storage Battery Co.	136	Superior Tube Co.	38
Fafnir Bearings Co.	175	Taylor Chain Co., S. G.	114
Fiske Bros. Refining Co., Lubrimate Div.	52	Texas Company	46
Flexonics Corp., Industrial Hose Div.	22	Thompson & Son Company, The Henry G.	118
Fort Howard Paper Co.	4	Thomson Co., J. J. Rivets Div.	142
Frasse & Co., Inc., Peter A.	224	Timken Roller Bearing Co., Industrial Div.	95
Fuller Company	160	Trent Tube Company	191
Gates Rubber Co.	64	Truscon Laboratories	137
Gaylord Container Corporation of Crown Zellerbach Corp.	181	Tubular Rivet & Stud Company	28
Gear Specialties, Inc.	29	Union Steel Corporation	14
		Union Wire Rope Co.	194
General Electric Company		United States Steel Corp., Wire Rope Div.	185
Apparatus Division		United States Steel Supply Co.	44, 45
Lamp Division		Valley Electric Corp.	216
Metallurgical Prod. Dept.		Vascoloy-Ramet Corporation	2
Tube Dept.		Veeder-Root, Inc.	120
Wiring Device Dept.		Vogt Machine Co., Henry	116
Gibson Co., William D., The Goodrich Industrial Products Company, B. F.		Waldes Kohinoor, Inc.	104
Goodyear Tire & Rubber Co., Inc.		Wales-Strippit, Inc.	138
Grant Pulley & Hardware Corp.		Waterbury Rolling Mills, Inc.	106
Graphic Controls Corp.		Weber Marking Systems Inc.	154
Gries Reproducer Corp.		Webster Company, F. S.	156, 157
Gulf Oil Corp.		Weirton Steel Company	197
Hammill Paper Company		Weinstein Sears Company	192
Handy & Harman		West Chemical Products, Inc.	41
Harter Corporation		Westinghouse Electric Corp., Apparatus Div.	59
Hassall Inc., John		Whitman & Barnes Division United Greenfield Corp.	37
Hewitt-Robins		Wickwire Spencer Steel Div. of the Colorado Fuel & Iron Corp.	53
Hubbell Inc., Harvey, Machine Screw Dept.		Winsmith, Inc.	54
Hvatt Bearing Div., General Motors Corp.		Wolverine Tube	132
Illinois Tool Works, Shakeproof Div.		World Bestos	50
International Business Machines		Youngstown Welding & Engineering Co., The	121

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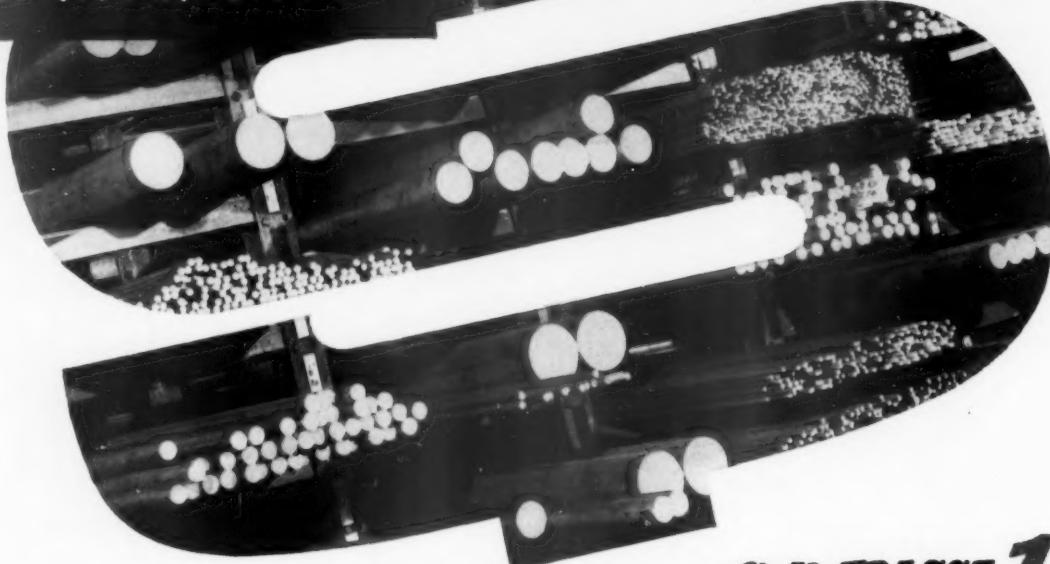
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